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THE PATHOLOGY AND BACTERIOLOGY OF BUBONIC PLAGUE.

Supplemented by the Report of All Cases to Date.

By W. H. KELLOGG, M. D., San Francisco.

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The recent appearance of plague in all parts of the world, forming a regular pandemic, after years of latency in a few edemic foci, has attracted wide attention to this almost-forgotten disease, and has been productive of much study and research, with brilliant results.

The disease has existed endemically in Arabia and Thibet continuously since the great plagues of the middle ages, and has only occasionally, and at intervals of years, appeared in other countries, and then, as a rule, only for a brief severe epidemic. During the last five years it has appeared in many parts of the world, and has been more widely distributed than ever before. In the year 1879 Virchow observed that plague never arises spontaneously where it has not previously existed, and predicted that some day it would be proven to be of microbic origin. In the summer of 1894, during the great epidemic in Hongkong, the bacillus of plague was isolated and described independently by Yersin and Kitasato. There were some differences in the two accounts, that of Yersin corresponding to the experience of later investigators. Kitasato has since, I believe, acknowledged that he was mistaken in some of his conclusions, so that Yersin is entitled to the chief credit for the discovery. The discovery of the bacillus by Yersin has established the diagnosis and study of the disease on a firm and exact basis, so that it is now in etiology, symptomatology, and pathology as well or even better known than many other diseases which are more familiar to the physicians of the United States.

General Characters of the Bacillus.—The microbial cause of plague is a small, short, thick bacillus, with rounded ends, frequently occurring in pairs, and, in agar and bouillon cultures, in short chains. They are non-motile, and do not form spores. They stain readily with all the anilin dyes, but show a special affinity for the thionin group; the best one for use, where smears from mixed infections are being stained, is carbol-thionin, applied for about five minutes, and not decolorized. Carbol fuchsin, applied for about ten seconds, then decolorized in one-half per cent acetic acid, also makes very pretty mounts, especially where the organisms are very numerous. With all dyes the bacillus stains more deeply at the poles, giving it the appearance of a diplococcus, and a careless observer could readily so mistake it. The organism in cultures and in tissues after death soon loses its typical oval form with bipolar staining, and shows involution forms of various sizes and shapes. In animal tissues under these circumstances ring-like forms with pale centers, which have been likened to doughnuts, are common. In agar and blood-serum cultures involution forms appear in twenty-four to forty-eight hours, and take the form of circles, crescents, and large, swollen, club-shaped objects. Colonies on agar plates, in seventy-two hours at 35 degrees C., are from .5 to 1 mm. in diameter, round, semi-translucent, with a bluish or opalescent tinge. The surface is elevated, smooth, and moist looking. On agar-streak tubes the growth follows the line of the needle track in an elevated grayish white streak, with uneven borders, which grows very slowly, and never attains a width of more than 2 mm. The growth is sticky, tough, and stringy in consistence. The first transplantation from the animal tissues grows very slowly, but subsequent generations become more accustomed to the new conditions and grow more readily. The growth on blood serum is similar to that on agar, but grows a little more freely. Gelatin is not liquefied. In bouillon the growth is quite characteristic. There is first a slight general turbidity, which soon clears, and there is formed a fine fiocculent deposit on the sides and bottom of the tube. If kept at perfect rest, there is also a film on the surface, which falls in a powdery form when the tube is jarred. Another peculiarity in bouillon is the stalactite growth first described by Haffkine. If a small quantity of fat, such as butter or coconut oil, is added to each tube and the culture kept absolutely still, a growth will extend downward into the media from the fat globules on the surface in long stalactites. If the tube is tapped gently, the stalactites fall to the bottom, and new ones form. Another reliable culture test is the rapid production of involution forms, when the bacillus is grown on Hankin's salt agar.

It was until recently supposed that the plague bacillus was a very delicate organism and easily killed by the ordinary vicissitudes of extra-corporeal existence; but some recent experiments by Rosenau and others would seem to oppose this conclusion. The German commission conducted some very extensive experiments on the vitality of the bacillus outside the animal body. They give the following table of the effect of time and various disinfectants: A thin layer of culture material on a coverglass exposed to direct sunlight is killed in one hour. Cultures heated to 70 degrees C. are killed in 10 minutes. Cultures heated to 80 degrees C. are killed in 5 minutes. Cultures treated with corros. sub. 1-1000 are killed at once. Cultures treated with carbolic acid, 1 per cent, are killed in 10 minutes. Cultures treated with carbolic acid 5 per cent are killed in 1 minute. Cultures treated with lysol 1 per cent are killed in five minutes. Cultures treated with chloride of lime 1 per cent are killed in 15 minutes. Cultures treated with quicklime 1 per cent are killed in 30 minutes. Cultures treated with sulph. acid 1-2000 are killed in 5 minutes. Cultures treated with muriatic acid 1-1000 are killed in 30 minutes. Pieces of organs, dirt, dressings, etc., infected with plague bacilli (in India), remained virulent 8 days. Same in Germany remained virulent 14 days. The bacilli in urine and feces lived 5 days. The bacilli in sputum lived 10 to 16 days. The bacilli in tap water lived 5 days. The bacilli in sterilized water lived 10 days. Rosenau, in the *Public Health Reports* for May 25, 1901, speaking of the plague bacillus, says: "They can in no sense be considered tender organisms, as was at first supposed. They are much easier to cultivate than the lanceolate coccus of pneumonia or the streptococci. In fact, they resemble more closely the hardier of the hemorrhagic septicemic group." In his experiments Rosenau dipped sterile cotton balls in a gelatin culture mixed with egg albumen, and exposed them in Petri dishes. It was found that in a dark room, at 20 degrees to 23 degrees C., and in the cool chamber, at 17 degrees to 19 degrees C., they remained alive and virulent for 75 days. Dried on little squares of crash under the same conditions they lived 48 days. Abel says, "The fact that the bacillus remains alive longer when dried at 16 degrees to 20 degrees C. than was at first announced, teaches that in our climate (Hamburg), at least, we can not expect the organisms to quickly disappear in clothing, etc." Rees states that the bacillus has been found alive after four months of freezing. It will thus be seen that while the organisms are readily killed by direct sunlight, disinfectants, and rapid drying at high temperatures, they are more resistant to slow drying at lower temperatures. It follows, therefore, that the disease is more readily suppressed in a hot, dry climate than in a damp, temperate one, other things being equal.

Animal Experiments.—Rats, guinea-pigs, rabbits, and monkeys are all very susceptible to infection, while sheep, goats, horses, and cows are susceptible to a lesser degree. Birds, and particularly pigeons, are immune. Here is an important difference between the plague bacillus and the bacillus of chicken cholera or rabbit septicemia, for the latter is pathogenic to pigeons. Either of the three forms of the disease may be produced in animals by varying the method of inoculation. If the culture is painted on the nose with a camel's hair brush, the pneumonic form of plague is produced. If the culture is rubbed into a slight abrasion of the skin of the leg, the bubonic form is the result; and if injected subcutaneously, the septicemic form ensues. The latter is the method I use in routine diagnostic work, and for the description of the lesions in experimental plague I will quote from the autopsy records of some of the animals used in establishing the diagnosis of some of the San Francisco cases.

Monkey inoculated with tissue from Case 1. At the point of inoculation, which was in the left breast, there was considerable coagulation necrosis. Subcutaneous edema was well marked, especially on the left side over the abdomen. The axillary lymphatic glands on the left side were enormously enlarged, forming a mass as large as a walnut. On section the gland showed congestion and hemorrhages into the gland substance. Cover-slip preparations from the blood, spleen, and gland showed large numbers of the bacillus. The lungs showed a well-marked pneumonia.

Guinea-pig inoculated from Case 13. Moderate hemorrhagic edema and slight tumefaction about point of inoculation. Superficial veins injected. Peritoneum contained 5 to 8 cc. pinkish, turbid fluid and small flocculi. Serous surface over small intestines filled with petechial hemorrhages. Mesenteric vessels strongly injected. Mesenteric glands swollen and hemorrhagic. Slight amount of similar fluid in pleural cavities. Heart muscle hyperemic, and cavities filled with dark blood. On upper surface and lower margin of liver a few small, yellowish areas, about pinhead size, on convexity. Slight enlargement of liver. Spleen six times normal size; the capsule over convexity covered with grayish white nodules, pinhead size. Mesentery full of minute hemorrhages. Supra-renals enlarged and full of hemorrhages.

Evidence That the Bacillus Causes Plague.—That the bacillus above described is the cause of plague is a fact as well established as that the earth is round, although I believe there are people still who dispute the latter fact, and probably these same people, or others of equal mental caliber, will still dispute that cases of plague have been found in California. Be that as it may, the following conditions and tests, which are considered as conclusive by scientific men, have been applied to the organism isolated from the San Francisco cases: 1.

Material taken from the bodies of the cases is found to contain an enormous number of the characteristic bacillus described by Yersin and every one since. 2. The material and cultures isolated from it produce in animals the lesions above described. 3. The same organism can be isolated from the animals, and is in turn fatal to other animals, producing the same lesions. 4. The bacillus, which is thus found to be the cause of death of these Chinese and whites, for there have been four of the latter, when examined is found to be a short, thick bacillus, with rounded ends, bipolar staining, decolorized by Gram, non-motil, and answers to all the cultural experiments previously described. It is pathogenic to rats, guinea-pigs, rabbits, and monkeys, but not to pigeons. A guinea-pig may be immunized against the pathogenic activity of this germ by an injection of Yersin's anti-pest serum. The instance of laboratory infection in Vienna is a case in point. On October 15, 1897, five months after the Commission had returned from India, a man named Barisch, who cared for the animals, fell ill, with high fever and cough without expectoration. On October 17 the patient's sputum contained blood, and bipolar bacilli were found in it. A guinea-pig was inoculated and killed the next day, and the plague bacilli found. On October 20 nurse Pecha fell ill with cough, expectoration, etc. On October 21 Doctor Muller began to feel ill with fever and expectoration, and he found the plague bacilli in his own sputum. All three died.

Modes of Transmission.—The organism may gain entrance to the body by one of several ways: 1. Through an abrasion of the skin. 2. By the respiratory tract. 3. By the gastro-intestinal tract. 4. By the tonsils. Infection through the skin and tonsils gives rise to the bubonic and septicemic varieties, through the respiratory tract to the pneumonic form, and through the intestinal tract to the gastro-intestinal and septicemic forms. The latter route is probably very rare, although the history of the case of Anne Roedde, the nurse from the Pacific Hospital, would seem to indicate that she was infected in this way. She was attending a young man named Samuel Flueth, who was at that time supposed to be suffering from nasal diphtheria. During her attendance on him he coughed suddenly and violently in her face, and she stated that she believed she swallowed some of the material. She was taken sick in two days, and died in three days more. At autopsy it was found that she had died of the septicemic form of the disease. There was no enlargement of any of the lymphatic glands, except a slight enlargement of those of the mesentery.

As to the method of transmission of the contagion from place to place and from man to man little is known. It has been stated that fleas carry it from rats to man, and Martin claims to have proved this, by showing that a healthy rat did not contract the disease when put in a cage with a rat that had died of plague, when the latter had had all the fleas removed; while a healthy rat in a cage adjoining a dead plague rat, that had not had the fleas removed, contracted the disease. To offset this it is claimed that a rat flea will not bite a human being. However, it gets from rats to man, and it is certain that rats are often the carriers of contagion, and it may even be that it is through the rats in the merchandise, and not in the merchandise itself, that the germ is carried from one country to another. There is some evidence that food stuffs may be the medium of infection, and the following instance supports this theory: Plague was discovered in Honolulu in

December, 1899, and the port was immediately closed, nothing being allowed to pass out to the neighboring islands. A month and a half after this, plague appeared in the island of Maui, although absolutely no communication had existed between there and Honolulu for ninety days. Investigation showed that this outbreak appeared shortly after the Chinese New Year, when a number of Chinese had gathered together and a merchant had opened a package of candies and food stuffs, which had been in his store for two months before the epidemic appeared in Honolulu. Nine cases of plague appeared immediately, and the supposition is that the germs existed in the imported food products. Transmission through the air does not occur, unless possibly in infected houses there may be some danger of inhaling plague-laden dust; but, as has been shown before, the bacillus does not withstand drying very long. There is little danger in merely entering a room for a short time in which are plague patients, and it is a well-recognized fact that doctors and nurses rarely take the disease from attendance on the cases. Nurses are, however, exposed to greater danger than the physician, on account of their more prolonged and intimate association with the patients. Autopsy work is especially dangerous, as one is exposed to the chances of direct inoculation with material containing the bacilli in large numbers. Houses become, in some mysterious way, saturated with contagion, and remain permanent foci of infection until destroyed or thoroughly disinfected, aired, and vacated for months.

Pathology of Human Plague.—There are three clinical forms of plague,—the bubonic, the pneumonic, and the septicemic. An intestinal form is sometimes mentioned, but these cases can generally be classed with either the bubonic or septicemic form. In the bubonic form there is present an enlargement of the lymphatic glands in one or more regions of the body, generally one; and the most common location is the femoral region, the glands about the saphenous opening seeming to show a special predilection for this form of infection. The neck is the next most frequent location, and lastly the axilla. The skin over the bubo, if the swelling is marked, is tense and of a dusky cyanotic hue. Occasionally petechial hemorrhages in the skin occur, and are either confined to the limb or distributed over the body. The bubo when cut into shows marked edema and hemorrhages of the periglandular tissues, and the glands themselves range in size from a hazelnut to a walnut. The glands on section are seen to be soft, of a dark purplish color, and mottled with lighter spots of necrosis. There may be punctate hemorrhages throughout the gland substance. The glands of other regions may be, and generally are, somewhat enlarged. There is apt to be congestion and isolated hemorrhages in the serous membranes, and the serous cavities, particularly the pericardium, generally contain an excess of bloody serum. The heart muscle is usually pale and flabby, and has the appearance of fatty degeneration. Sub-endothelial hemorrhages and hyperemia of the intima of the larger vessels is common. Submucous hemorrhages in the intestines are frequent, and extensive hemorrhages into the omentum, mesentery, and retroperitoneal regions may occur. In the case of William Murphy, who died at the City and County Hospital in July, 1900, there was a most extensive hemorrhage of the pancreas. The spleen is always enlarged, and may be two or three times normal size, the substance soft and dark in color. In cases of intense infection a cut surface shows numerous whitish specks, which are found to contain the bacilli in enormous numbers. The kidneys are congested and enlarged. In the pneumonic form the lungs are edematous, engorged with blood, and show patches of consolidation. The pleural surfaces are usually covered with petechiæ. The air passages are filled with bloody mucous. The changes in the other organs are the same as in the bubonic form. In the septicemic form the lymphatic glands are either universally slightly enlarged, which is the rule, or there may be no perceptible enlargement in any region. The picture is one of septicemia, with a marked tendency to hemorrhage, as described in the bubonic form. The bacilli are found in the blood in the septicemic form, as is also the case in the later stages of the bubonic and pneumonic varieties. It is my opinion that many of the cases classed as bubonic are primarily septicemic, and the involvement of the glands is secondary.

Of the cases that have occurred in San Francisco during the past year, I have seen 34. Of these 2 were of the pneumonic form, 9 of the septicemic, and 23 of the bubonic form. Of the latter, the buboes were located in the inguino-femoral region in 20 cases, and in the neck in 3 cases.

Bacteriological Diagnosis.—If a bubo is present in the suspected case, a sterilized hypodermic syringe should be used to extract fluid from the gland, the needle being plunged deeply into the center of the swelling. Some of this fluid is streaked on agar tubes and some spread on glass slides or covers, dried, fixed, and stained with carbol thionin. The lobe of the ear should be punctured and a drop of the blood treated in the same way. In the septicemic form the blood only, of course, can be examined. In the pneumonic form, in addition to the blood, the sputum should be stained, and some of it may be inoculated into guinea-pigs. Care should be exercised to avoid actual contact of the hands with infected material. In preparing the stained slides two should be made from each source, one stained with carbol thionin and one by Gram's method. The presence of a bipolar staining bacillus, decolorizing by Gram, occurring in a case clinically suspicious, is sufficient to warrant prompt isolation and serum treatment, while the absence of the bacillus is not of much value in deciding that the case is not plague. The Widal reaction may also be tried, but is not of much value, except late in the disease, and then the microscopical examination is more certain.

Vaccination and Serum Treatment of Plague.—There are two preparations much used for these purposes, Haffkine's prophylactic lymph and Yersin's antitoxic serum. Haffkine's prophylactic is a fluid containing the toxins or poisons produced by the plague germ, and is used solely to vaccinate well people against the plague. It is not curative in its action, and would even be dangerous to use in one already in the early stages of the disease, for it would simply be adding more toxins to those already being produced in the system. The method of its preparation is as follows: Ordinary bouillon cultures of the bacillus in flasks are allowed to stand at a temperature of 27 degrees to 30 degrees C. for three or four weeks, or until growth ceases. Haffkine adds a little clarified butter to each flask, from which the growth projects downward in stalactites, which reform when broken off. After growth ceases the flasks are sterilized by a temperature of 65 degrees or 70 degrees C., for one hour, one-half per cent carbolic acid added and the fluid drawn off into small bottles. Virulent cultures only should be used. This sterilized bouillon culture is used just as it is, the patient receiving not only the dead bodies of the bacilli, but the fluid and soluble products in which they have grown. The intra-cellular poisons of the dead bacilli are the most important constituents of the Haffkine lymph, and are supposed to possess a bactericidal power in the tissues, while the extra-cellular poisons cause the production of antitoxic properties in the tissues. The injection of one cc. of Haffkine's prophylactic protects the person for a period of probably six months as perfectly as does vaccination against smallpox. As instances of its value the following are conclusive: 1. Half the inmates of the Byculla House of Correction, in India, were inoculated with Haffkine on January 30, 1897. From this date the inoculated and uninoculated lived together under exactly similar circumstances during the time plague prevailed. Of 173 unprotected persons, 12 were attacked with plague, and 6 died; and of 148 protected persons, 2 were attacked, and none died. 2. During 1897, 8,200 persons were inoculated in Bombay, of whom 18 (all natives) were attacked, and only 2 died, and these two developed plague symptoms within twenty-four hours after inoculation. 3. In Tanowlie, near Poona, with a population under 2,000, a recrudescence of plague occurred. Of 325 protected persons, 14 were attacked, and 7 died, while of 377 unprotected persons, 78 were attacked, and 58 died, a reduction in mortality by inoculation of 85.7 per cent. The antitoxic serum of Yersin is totally different from Haffkine's prophylactic. It is an antitoxin just as that of diphtheria, and promises to be as successful in its particular field. It also acts as an immunizing agent in doses of ten to twenty cc., but the immunity lasts only about fifteen days.

In its preparation, horses are immunized by inoculation with dead or living attenuated cultures. The doses are gradually increased until the animal, after a length of time, acquires an active immunity. The serum obtained from horses after more than a year's treatment gives the best results.

SUPPLEMENTARY REPORT OF CASES*

Case 32. Fong Lung Why, male, aged 33 years, died February 24, at 13 Waverley Place. This man, according to the statement of the Chinese undertaker, came from Sacramento, sick, two weeks before his death. There were no buboes present, the case being one of the septicemic form, and it was only recognized as a case of plague by the routine examination of the spleen, which is removed in all cases in which the cause of death is doubtful. The smears from the spleen showed myriads of typical plague bacilli, and the inoculated animals died with typical plague lesions.

Case 33. Leong She, male, aged 43 years, born in China, died April 1, 1901, at 740 Pacific Street. I saw the case with Dr. Wilson at the above-mentioned place, which is the undertaking establishment of Main Fook. The body was that of a large, well-built, and well-nourished man, and was badly decomposed. Dr. Wilson stated that the day before he had noticed a swelling on the left side of the neck, but the tissues were so distended with gases at the time I saw it that no swelling could be made out. Incision did not disclose any gland. The spleen was much enlarged, and very soft and friable. Smears from this spleen showed involution forms of the bacillus pestis, together with other organisms. A guinea-pig inoculated from the spleen died in five days with typical plague infection.

Case 34. Leung Tun Gee, male, aged

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*For discussion, see State Society Proceedings, page 287.

59 years, laundryman by occupation, died April 4, at 417 Commercial Street, between Sansome and Battery. It is learned from the Chinese undertaker that this man had come from Santa Barbara, sick, four days before his death. He was without money and friends, and a subscription was taken up for his burial. It was also stated that the man was suffering from pneumonia, and had been sick for two months before his death, but had been very much worse for a few days before his death. There was no enlargement of the external lymphatic glands. Not having facilities for complete autopsy, the spleen only was removed, and was found to be enlarged, very dark, and soft. Smears from the spleen showed numerous typical bipolar plague bacilli. Animals have been inoculated, and the diagnosis of plague has been fully verified.

Case 35. Lee Ah Wah, male, Chinese, aged 46, died July 6, 1901. Post mortem: Diffuse cyanosis of face, eyes injected; body shows more or less venous stasis over greater part of trunk; some glandular enlargement in both inguinal regions, but more especially in right; glands also slightly enlarged in both axillæ; rigor mortis well preserved; pupils moderately contracted; contraction of muscles of calf of leg, feet and legs covered with some Chinese ointment; no signs of venereal disease; body still slightly warm. Incision made over right inguinal glands; the skin over this region was covered with ointment. On incision area is found to be infected, but contains no hemorrhages or edema; several glands enlarged up to the size of a small marble, slightly redder than surrounding tissue, cut rather firmly, and show no necrosis. Smear from the gland shows numerous short, rather thick bacilli, some of which take a bipolar stain, usually occurring singly, but sometimes in pairs, and in a few cases in chains of three or four elements. Abdominal incision: Long incision made in median line; subcutaneous fat well preserved; omentum covers the intestines, surface moist and glistening; blood-vessels of stomach dilated; liver extends about one and one-fourth inches below costal border; small scattered hemorrhagic areas over surface; abdominal cavity contains two or three c. m. of slightly hemorrhagic fluid; peritoneal coat of intestines injected; appendix normal, and points toward umbilicus. Stand of diaphragm, left sixth rib, right fifth interspace. Spleen bound to abdominal wall by soft, fresh adhesions, bluish red in color, measures 14x8x4 c. m., numerous small hemorrhages under capsule; the adhesions which bound it to wall tore off some part of capsule in places; numerous small miliary white areas are seen under capsule, and can be distinctly felt as a granular surface when the knife is passed over them; spleen is rather firm in consistency, cut section cuts easily, fairly rich in blood of a light red color with areas of darker shades, in the center of which little white nodules can be seen; pulp somewhat bulging; connective tissue about normal in amount; small vessels everywhere dilated, but no distinct rupture; smear from spleen shows numerous short, rather thick bacilli, taking the bipolar stain; costal cartilage beginning ossification; serum flows from both plural cavities; sternum removed; blood-vessels infected everywhere; no enlarged glands made out; clear, yellow fluid flows from right pleura, taken together with that contained within amounts to 90 to 100 c. c. Lung collapsed in left side, and retracts beyond the border of ribs; same condition exists on opposite side. Cardiac area much increased, enlarged to one and two-thirds size of the fist of individual. Pericardium accidentally opened. On opening the thorax the fluid which still remains is clear, yellowish; cardiac surface covered to large extent with fat, vessels dilated; numerous small hemorrhages under pericardium. Left lung free from adhesions; mediastinal glands slightly enlarged and pigmented. Pleura, parietal very much injected; visceral, of blue slate color with mottling oi pink, has not lost its luster; blood-vessels about base dilated; lung crepitates throughout; right lung, adhesions rather firm in character in the lower lobe, otherwise the same as the left. Aneurism of ascending aorta contains small amount of fluid. Aorta opened; one side dilated; surface blood-covered, with irregular plaques; arch of aorta 8 c. m. broad. Heart, left auricle empty, except for small quantity of fluid blood; right ventricle contains fluid blood and dark clot. Kidney, left, fatty capsule rather well preserved; fibrous capsule stripped off very easily, exposing a reddish yellow surface, on which the venous stellate shows up prominently; contact between pyramids and cortex well preserved; cortex about normal in breadth; color that of light reddish yellow, with numerous red spots. Kidney, right, ditto. Gall-bladder moderately distended. Liver of a light yellow color, with interspacings of streaks of dark red, containing numerous hemorrhagic spots ranging in size from that of a pin-point to a hin-head under the capsule; small vessels under capsule dilated; moderately firm on pressure, cuts about normal; cut surface of same color as that described under capsule; moderately rich in blood; cut surface presents somewhat of a boiled appearance that is structureless. Lung, right contains an old nodule about one-fourth inch below pleura of lower lobe; cut surface, air, blood, and serum exudes, especially on pressure; crepitation throughout. Lung, left, rather pale; cut surface, serum and air exude on moderate amount of pressure. Mesenteric glands somewhat enlarged. Intestines: The vessels of the mucosa of the intestines pretty uniformly injected; no ulceration. Stomach: Mucous membrane of stomach contains numerous groups of small hemorrhages; stomach partially filled with rice. Bladder empty; mucous surface apparently normal, except dilation of small blood-vessels.

Bacteriological examination shows infection with bacillus pestis. Guinea-pig, body of half-grown pig, which was inoculated sixty-four hours previous to death with a pure culture of bacillus pestis, obtained direct from the spleen of Lee Ah Wah. Method used in obtaining this culture was as follows:—

Streaks were made from the spleen on agar slants placed in the incubator at 30° at the end of forty-eight hours; the suspicious colonies were taken and replanter on agar slants; some of these showed a pure growth of an organism having all the characteristics of the bacillus of bubonic plague; one c. c. of an agar suspension was injected into a previously healthy guinea-pig; skin removed shows enlarged inguinal and axillary glands; these glands are injected, red and necrotic; whole subcutaneous tissue over abdomen is infected, and edematous smear from subcutaneous tissue in neighborhood of gland shows large number of cocco-bacillus, occurring singly and in chains of two to seven elements, taking on the bipolar stain. Abdomen opened; shows no signs of peritonitis; spleen enlarged, soft, friable, and apparently normal. Lung shows areas of congestion; smear from the spleen shows numerous bacilli varying in size from that of a very short cocco-bacillus, to twice as large, taking on a very distinctly bipolar stain, and, in short, morphologically typical of bacillus pestis. These organisms were wholly decolorized by Gram. [Report of Dr. Currie, Marine Hospital Service.]

San Francisco, Cal., July 19, 1901.

To the Honorable, the Board of Health, City and County of San Francisco—

Gentlemen: I have the honor to report that the work is all finished on the cases of the five Japanese girls found suffering from plague during the early part of the month.

On July 8 I was informed by Dr. Ryfkogel that he had been called in consultation on the sick Japanese girls at 845 Washington Street, and had seen them with Drs. Regensburger, Dodge, Evans, and Carpenter.

The same evening, at about 10 P. M., I saw the patients, with Drs. Ryfkogel, Curry, White, and Blue, and made a clinical diagnosis confirming that of Dr. Ryfkogel, viz., bubonic plague.

Case 36. The first girl examined, Shina Takagi, had a temperature of 104° and a well-marked painful bubo in the right groin, also some enlargement in the left.

Case 37. The second, Miyo Ikeda, had a temperature of 104.4° and a bubo in the right groin, and was in a semi-stupor, but was easily aroused by pressure on the inflamed glands, as that seemed to give great pain.

Case 38. The third, Ume, had a temperature of 104.2°, and a large, painful, inflammatory swelling of the lymph glands in the right axilla. Some blood from the latter case, secured by Dr. Ryfkogel at his first visit, gave a typical Widal reaction with plague bacilli. The organisms were also found in great numbers in the gland juice from the bubo of Shino. An examination of blood from a puncture of the gland of Miyo did not show any bacilli.

Case 39. The fourth case was Fuku Inaki, a Japanese girl, whom I saw for the first time at a Japanese lodging house at 526 Pine Street, on July 10. She had come to this place four days before, and was taken sick twenty-four hours before I saw her. At this time her temperature was 101.5° Fahrenheit, and pulse 106. She was complaining greatly of the pain from an enlargement of the lymph glands of the right inguino-femoral region. The swelling was about the size of an egg, and was extremely tender on pressure. She had been given 20 cc. of Yersin's anti-plague serum by Dr. Rickey, her attending physician. The next day she was removed to 845 Washington Street, whence she had originally come, and where Ume was. All of these four girls, except Ume, died; Miyo and Shina on July 9, after an illness of about ten days, and Fuku on July 11, about forty-six hours after her first symptoms developed.

Autopsy, Shina. July 9, 3 P. M. Body of a well-developed, well-nourished Japanese woman; no skin eruption visible. Rigor mortis slight. Buccal and ocular mucous membranes normal. Glands, anterior and posterior cervical, popliteal, and submaxillary palpable. Glands of inguino-femoral region, right side, form a large mass of uniform consistency, about 5 cm. in diameter. Incision shows edema of surrounding tissues with some hemorrhage. Left side, the glands are larger and more hemorrhagic. Intestines distended with gas. Spleen 12x7x4 cm. Pulp swollen, soft, rich in blood. Trabeculæ indistinct. Mesenteric glands enlarged and hemorrhagic. Kidneys: left, 6x4x3 cm. Cortex swollen. Markings indistinct. Capsule strips readily. Right kidney somewhat smaller, otherwise same. Ovary, left hemorrhagic. Endometrium normal. Vagina, normal. Bladder, mucosa injected, no hemorrhages. Liver, normal in size, cut surface pale, several hemorrhagic areas; pericardium normal; heart valves normal. Lungs: left free, crepitates throughout. Congested along posterior border. Cut surface exudes frothy fluid. No consolidation. Right same. Stomach, serous surface normal; submucous hemorrhages along the superior cardiac portion and the lesser curvature. Smears showed numerous plague bacilli in the inguino-femoral glands, but none in the spleen or blood.

Autopsy, Miyo. July 9, 12 M. Body that of a young Japanese adult female. Rigor mortis well preserved. Pupils moderately dilated. Glandular enlargement marked in right inguinal region, and some reddening and edema over same. Slight enlargement in left inguinal region. Axillary and cervical glands not palpable. Incision, median. Subcutaneous fat plentiful. Abdominal muscles moist and normal in color. Peritoneal cavity: Intestines not injected; surface has not lost its glistening appearance. Appendix normal. No fluid in abdominal cavity. Liver not visible below costal border. Diaphragm, fourth rib left side, fourth interspace right side. Spleen, tears while being removed. Reddish brown in color, with here and there scattered under capsule splotches varying in size from a millet seed to one-fourth inch in diameter; substance soft; organ enlarged to twice normal size, and dark in color. Thorax: Left lung, some adhesion. No fluid in pleural cavities. Right lung, firm on pressure; crepitates in middle and upper lobes, little or none in lower. Cut surface, reddish brown. Pressure yields only a small amount of air, together with serum and blood. Connective tissue increased. Section floats. Left lung, crepitates throughout, otherwise same as right. Pericardium contained about 20 cc. clear, yellowish fluid. Heart partly covered with fat, and showing signs of old pericarditis; milk spots; ventricles empty; valves normal. Kidneys: Left, fatty capsule well preserved; somewhat enlarged. Capsule strips readily. Surface of a dark reddish color, with areas of light yellowish red. Venæ stellatæ prominent. Cut surface rich in blood. Contrast between cortex and pyramids well preserved. Right kidney, few hemorrhagic spots under capsule, otherwise same as left. Aorta shows a few small plaques about opening of coronary artery. Liver firm on pressure, yellowish red in color, with small areas of dark purple. Stomach, empty. Mucosa contains small hemorrhagic areas. Right inguinal glands form a mass as large as a hen's egg. Their cut surface is light red, hemorrhagic and necrotic.

Autopsy, Fuku Inaki. July 12, 11 A. M. Body that of a well-developed, well-nourished Japanese girl about twenty-six years old. Buccal and ocular mucous membranes are injected, and there is a bloody mucoid discharge from the nose, and a yellowish purulent discharge from the vagina. Rigor mortis slight, post mortem livor well marked on face and dependent portions of the body. Scattered over upper and lower extremities is a skin eruption, most marked on the arms, also on the face, neck, and chest. Eruption varies in size from pin-head to small pea; no surrounding edema; no induration, and subcutaneous tissue does not seem to be involved. Submaxillary, anterior, and posterior cervical, axillary, epitrochlear, and left inguinal lymph glands not palpable. The right inguino-femoral glands form a distinctly visible and palpable mass, somewhat soft but of uniform consistency, about 5 cm. in diameter. No ulcers or cicatrices on external genitals. Abdomen much distended. Skin over the bubo in the right inguino-femoral region is intact, and in the immediate neighborhood are three or four spots of the eruption above referred to. Incision disclosed the largest glands in the femoral region, hemorrhagic periglandular edema, glands matted together, forming a mass larger than appeared from external inspection. Intestines, distended and moist, about 150 cc. of clear fluid in the peritoneal cavity. Adhesions between end of appendix, right ovary, and tip of omentum. Over surface of intestines are dark areas suggestive of submucous hemorrhages. Vessels of intestines injected. Spleen shows acute peri-splenitis, measures 8x6 cm. Pulp swollen, trabeculæ obliterated. Malphigian bodies distinct. Kidneys: Right capsule strips readily without loss of cortical substance. Cortex 2 cm. thick, vessels injected, markings distinct. Pelvis injected. Kidney measures 8x4x 2½ cm. Left, same. Liver, 24x10x6 cm. No lesions. Gall-bladder normal, duct patulous. Heart, normal in size, left ventricle contains large chicken-fat clot. Valves clear. Lungs: Left, small, and crepitates throughout. Root glands enlarged. A small piece floats in water. No tubercules. Right lung crepitates throughout; root glands larger than left. Otherwise same as left. Ovary, right, shows a large hemorrhage about 2 cm. in diameter in a Graffian follicle. Tubes: Right is 1½ cm. across widest part, and contains purulent matter resembling that exuding from external os; left tube also contains pus. Uterus measures 5x3½ cm.; wall about 1½ cm. thick. Endometrium inflamed and hemorrhagic on left side. Stomach: The gastric mucosa is hemorrhagic at superior cardiac surface.

Guinea-pigs inoculated with tissues from these three cases all died of typical plague infection, and the bacillus has been obtained in pure culture from their organs. The bacillus was also obtained in pure culture from the tissues of the cases at post mortem. In one case, that of Shina, the bacillus was obtained in pure culture from fluid aspirated from her bubo during life. A culture from this source was used to inoculate two guinea-pigs, one of which had been immunized by an injection of Yersin's antiplague serum. The one not protected died promptly of typical plague, while the other is still alive and well after ten days, although it received double the dose given to the other. At this date, the girl Ume is still alive, with a fair prospect of recovery.

REPORTS OF DR. H. A. L. RYFKOGEL.

Drs. Regensburger, Carpenter, Evans, Dodge, and Kurozawa—

DEAR DOCTORS: The preliminary examination of the gland juice of Shina and of the blood of Shina, Miya, and Ume, all of whom I saw, in consultation with you today, gave the following results: Smears from the gland juice show enormous numbers of bipolar bacilli decolorizing by Gram's method of staining and identical in size and form with the bacillus pestis. As you know, I did not obtain any gland juice from either Ume or Miya because the patients were evidently suffering from the same disease, and a diagnosis made in one would suffice for the three. Blood, however, was taken from all the cases (ear blood). No bacilli were found microscopically in any of the three samples. The blood found in the case of Shina showed 27,600 white cells per cm.; in the case of Miya 15,000. No count was made in Ume's case. The samples of the blood of Shina, Miya, and Ume each gave an immediate and characteristic agglutination reaction with a bouillon culture (48 hours) of the bacillus pestis, that I was fortunate enough to have on hand. I have made cultures from the gland juice and blood of Shina and the blood of Miya and Shina, and have inoculated a guinea-pig with three drops of the gland juice from Shina. The cases are undoubtedly plague, probably of the purely bubonic type.

Second report. The cultures taken from the gland of your patient Shina showed in 36 hours a pure culture of an organism identical in its cultural reactions with bacillus pestis. The growth on agar was very viscid, and showed the characteristic ground-glass appearance. The organism was transferred to bouillon, Dunham's solution, glucose agar, 3 per cent salt agar, gelatine, and milk, Microscopic examination of the agar showed growth to be composed of bipolar bacilli decolorizing by Gram's method. In bouillon it grew in short chains, which formed a deposit at the bottom and sides of tube. The growth in bouillon showed a very characteristic agglutination reaction with anti-pest serum from the Institute Pasteur, the dilution used being 1 to 200. The reaction occurred within ten minutes. No indol was formed in Dunham's solution. (Test controlled with B. Coli Com.) Gas was not formed in glucose agar; no alteration could be seen in the milk; gelatine was not liquefied; the characteristic involution forms were present on salt agar. The guinea-pig inoculated with tissue juice from Shina died in 72 hours, and at autopsy showed the characteristic lesions and distribution of bipolar bacilli seen in experimental pest. I have inoculated with pure culture from Shina a guinea-pig immunized with anti-pest serum and a non-immunized pig and a pigeon. I will let you know the results.

I obtained a single colony of bacillus pestis from the blood of Miya, but none from that of Ume. Of course the demonstration of the bacilli in the tissues of Shina and in the blood of Miya, and the presence of the agglutination test in the blood of all three together, with the practical identity of the symptoms in the three cases, makes it absolutely certain that the three suffered from the same disease, and this disease was bubonic plague.

THE SURGICAL TREATMENT OF CERVICAL LYMPHADENITIS.

By Charles G. Levison, Chief of Surgical Clinic, Medical Department, University of California; Associate Professor of Surgery, Post-graduate Department, University of California; Consulting Surgeon to the Mount Zion Hospital.

The treatment of enlarged glands of the neck has always been extremely unsatisfactory, it being well known that many cases of tuberculous glands only recover after repeated operations, with the natural consequence of deforming cicatrices, which, from a cosmetic standpoint, especially in girls, is a condition much to be dreaded. The description found in most text-books upon surgery would produce the impression that tuberculous lymphadenitis is a disease easily cured; that it is only necessary to incise and enucleate. As a matter of fact, in actual practise, while there are many cases of genuine tuberculous adenitis, with periadenitic involvement (generally implying caseation), cured after a single operation, frequently they are only cured after repeated operations, and by operation is meant a careful anatomical dissection, laying all of the vessels bare, as far as possible, with the removal of every particle of diseased tissue. It is surprising to the inexperienced operator at the rapidity with which these gland masses develop, and it has occasionally been our experience, in operating for tuberculous glands, where an extensive dissection has been made, that the mother returns and asks why the glands were not removed. Here the cause is due to reinfection and infiltration of other glands. We are often told by surgeons in conversation how successfully they operate these conditions, and this is quite correct from a gross surgical standpoint; but the etiology is lost sight of when such statements are made, for the etiological factor exercises a profound influence upon the ultimate result. It would be well to consider for a moment the pathological conditions which arise, and their manner of behavior under treatment. In the chronic lymph adenitis there is a simple hyperplasia of the cellular elements, as well as the reticulum. In one form there is an increase in the size of the cell, which becomes epitheloid, and is known as the large-celled hyperplasia. In another form a destruction of the greater part of the cellular tissue occurs, in consequence of the development of fibrous tissue; here the condition is known as fibrous hyperplasia. The simple hyperplastic form frequently arises, as a result of the absorption of toxic products from bacterial infection (which are retained within the affected group of glands), and is most frequently found in scrofulous children, who suffer from eczema, marginal blepharitis, carious teeth, enlarged tonsils, and nasal catarrh. It can also develop in consequence of any infection such as carbunculosis, furunculosis, ulcerated tooth, or any infectious process occurring on the face or head; but in these conditions, unless the process goes on to suppuration, the gland, as a result of tissue change, gradually resumes its function and normal size. In children caries of the teeth is the principal etiological factor; here the toxins generated in the carious teeth are retained by the cervical glands, and result in their hyperplasia. The frequent association of caries of the teeth and hyperplastic lymphadenitis has been well shown by Stark (1), who examined a number of school children suffering from this condition, and found that in only 20 per cent of cases examined where caries could not be demonstrated, that the children were tuberculous or that they had a short time before experienced either a diphtheria or an angina. Of the 80 per cent having caries, 16.8 per cent had a tuberculous predisposition, 22.2 per cent gave a history of tuberculosis, or some infectious disease. The remaining 41 per cent presented no manifestation of disease other than caries of the teeth; eight and one-third years was the average age of the children examined. The hyperplastic lymphoma is usually small, movable, and painless, seldom attaining the size of a pigeon egg. The prognosis "quoad restitutionem" is generally favorable, unless infection occurs from a pyogenic microbe, resulting in suppuration, or with the bacillus of tuberculosis, inducing a tuberculous process.

Diagnosis is not always easy, and oftentimes can be made only after a period of observation. If a gland remains stationary for an indefinite period, or gradually grows smaller, after the source of irritation has been removed, the diagnosis of hyperplastic gland is easily made; if, on the other hand, instead of reducing in size, the gland grows larger, and involves by infiltration neighboring structures, with the gradual development of an abscess, the diagnosis of tuberculosis becomes probable. In these conditions the bacillus of tuberculosis is seldom demonstrable, and the diagnosis is made possible either by the histological appearance under the microscope or by the inoculation of the guinea-pig with the pus or tissue, and awaiting developments.

The following is the accepted classification of the tuberculous lymphomata:

1. In the simple hyperplastic form the bacillus of tuberculosis can never be demonstrated, and even microscopically can not be differentiated from the simple lymphoma; here animal inoculation is the only positive proof. 2. The hyperplastic form, with nodule formation; in the hyperplastic gland nodules develop, which are at first discrete and later coalescent, developing in consequence of degeneration into the third, or caseous, form.

Coincident with the stage of caseation there develops a periadenitis, when the capsule of the gland, as well as the neighboring tissues, becomes infiltrated, and suppuration of the gland, with perforation of the gland capsule, occurs with the development of the classical picture of tuberculous lymphadenitis. The skin becomes bluish, fluctuation is evident, and, if operation is not resorted to at this stage, fistulas form and persist for an indefinite period. Occasionally a spontaneous cure results; this is due to an infection of the tuberculous process with pyogenic cocci, which, generating quantities of virulent toxins, dissolve the gland, resulting in an absolute cure. Occasionally the gland capsule may become infected with pyogenic germs, so that under favorable conditions the gland is thrown off intact, similarly to the exfoliation of a sequestrum; here a cure also results. Cure may occur when the tuberculous tissue undergoes fibrous change or calcification.

Prognosis.—This is always a serious consideration, on account of the possibility of general infection, either through the lymphatics or as a result of the rupture of a cheesy gland into the wall of a vein, with the consequent development of a miliary tuberculosis. Often tuberculosis develops subsequent to operative interference. It is claimed by Blos (2) that the removal of cervical tuberculous glands in tuberculosis of the lungs, exercises a favorable influence upon this process. He reports 20 cases of lung tuberculosis out of 140 cases operated. Sixteen showed disappearance of all lung trouble subsequent to the operations, and of these 16 cases, 11 were free from recurrence, showing 80 per cent of cure in lung disease. Subsequently there developed, of the 140 cases, 17 cases of lung tuberculosis, and of these 17 there were 11 recurrences of the lymphomata; the other six remained free from recurrences.

Treatment is consitutional, where possible, in every case before resorting to operation. The effect of fresh air, sea baths, sunshine, together with the administration of creosote, iodin, and codliver oil, have the effect of curing many of these conditions. Constitutional treatment is much neglected nowadays, and the child is frequently rushed to the operating table, instead of being given the fullest benefit of hygienic measures. If this form of treatment is without result, operative interference must next be considered; here the character of operation to be carried out will naturally depend upon the etiology of the tumor. A simple hyperplasia which has not responded to constitutional treatment can first be subjected to various conservative methods, all of which have been devised to obviate scar formation. A method in general use consists of a five or ten per cent emulsion of iodoform in olive-oil, which is injected into the gland. In France a camphor naphthol mixture is also used as an injection. Both of these can be used repeatedly, and occasionally cause the gland to shrink. A two per cent chlorid of zinc solution is recommended to be injected into the center of the gland, using ten minims every third day; this results in softening, and consequent formation of an abscess, which, when evacuated, often results in a cure, with but little cicatrix remaining. In the intra-capsular abscess the pus is evacuated by means of a trocar, through which an iodoform emulsion is injected, until the cavity is filled; this occasionally cures. The principal method of surgical interference is the radical operation, which consists in complete extirpation. Dollinger attempts to conceal the cicatrix, by making his incision at the junction of the skin and the hair at the back of the neck, through which the glands are removed. This method, however, possesses many disadvantages, for the author himself states that he has on five occasions cut the facial vein; there is also great possibility of infecting the wound, in consequence of the tearing of caseous glands; further, that it is impossible to enucleate other than movable hyperplastic tumors. Radical extirpation will now be considered. The skin incision, if the gland is situated in the submaxillary region, can be made from the mental process to the angle of the jaw, parallel with its margin. The scar which results from this incision is almost invisible. The incision in general use is made along the anterior border of the sternomastoid, and, if healing occurs there remains a linear scar. Kocher recommends, as in his operation for goitre, a transverse incision, which he claims results in a scar that is frequently imperceptible, it being concealed by the folds of the neck. In the periadenitic abscess with adherent skin, the skin must be excised by an elliptical incision, for if this is not done, reinfection from the skin will frequently occur. In these cases, if the abscess is evacuated and nothing further attempted, a fistula often persists; this is due to a deep-seated, subfacial, caseous gland, which can only be removed by elevating the fascia and dissecting the spaces out. In this class of cases it is essential to make a clean and absolutely complete anatomical dissection, laying the vessels of the infiltrated region bare, and removing every vestige of diseased tissue. It is well known that these glands are most frequently situated under the sternomastoid, which can generally be drawn to one side. If the infiltration is so great that the muscle can not be manipulated, it can be cut across, and, at the close of the operation, united by suture, without damage. Here the spinal accessory nerve must be avoided. Its position can be easily recalled by bearing in mind that it emerges from the posterior border of the sternomastoid, on a level with the upper border of the thyroid cartilage; for if the nerve is cut, cucularis paralysis results in two-thirds of the cases. The jugular vein is no longer to be feared, for, if it can not be separated from the mass, resection is indicated; this can be easily performed without much danger. According to Fraenkel, Billroth, in 148 cases of gland extirpation, resected the jugular 16 times without harm. Rohrbach (4) collected 91 cases of ligation of the internal jugular, with only one death attributed to the operation. In the author's (5) reported case a thrombosis of the jugular vein, sigmoid and lateral sinuses resulted from a resection of the jugular for malignant growth, showing that the operation is not devoid of danger. It is never necessary to resect either the carotid or the vagus, for these structures can always be separated from the infiltrated mass. Thorough hemostasis having been effected, the wound is closed after all the diseased skin has been excised, provision being made for gauze drainage. The skin can be closed with the subcuticular catgut suture, but the author's preference is for a small-sized silkworm gut suture. This has given by far the most satisfactory cicatrix. Out of 429 cases operated in Jordan's Clinic (Heidelberg), there was no death. More satisfactory results than have heretofore been obtained can be effected by the Phelps-Powell method of disinfection, which can be carried out in the following manner: The cavity is first filled with pure carbolic acid (95 per cent), which is allowed to remain for one minute, by the watch; this is then sponged out, and the cavity is immediately filled and washed out with pure alcohol. This procedure has also been strongly recommended for the treatment of bone tuberculosis. In both gland operations and bone tuberculosis the author has used this method frequently, with the result that a cure was often effected after a single operation. Any surgeon who has had an extensive experience in the treatment of tuberculous conditions will be astonished at the phenomenal effects resulting from this method. Blos (2) reports 328 cases operated in the Heidelberg Clinic of Jordan, with subsequent examination of 140; 82 of these were examined after six years, and of them 60, or about 73 per cent, were found to be permanently cured. In 90 of these 140 cases, periadenitic processes (adhesions and abscess formation) were present. In 85 of these cases the tumor was extirpated, in 43 enucleated, in five incision, and in seven combined operation was performed. In 69 of these cases the patient was cured with one operation, while in the remaining cases repeated operations were necessary. The subsequent examination revealed that in 42 cases 13 (30 per cent) local recurrences in the scar were found, and in 72 cases (51.4 per cent) general glandular recurrences could be demonstrated. Fraenkel (3), in 1885, reports 148 cases operated in the Billroth Clinic, with the final report of 48 cases. Of these, 34 (71 per cent) were considered cured, but only 12 remained permanently cured after three and one-half years. In 1890 Wohlgemuth (6) reported 81 cases, of which 45 cases of total extirpation were performed, with 26 (70 per cent) cures; where incision and excochleation were performed, there were 17 cures (63.9 per cent.) In 46 cases which were not operated, there were 11 (24 per cent) cured. Furnrohr (6), 1896, reports the following: Of 87 cases with subsequent examination, 36 (41.4 per cent) were found permanently cured, and in 29 (33.2 per cent) recurrences were shown; death occurred in 23 (26 per cent) from tuberculosis. Seven hundred and forty-five cases collected by Blos show 54 per cent permanent cures, 28 per cent recurrences, and 18 per cent deaths from tuberculosis; at a shorter or longer period subsequent to operation, 48 were found after extirpation and after enucleation to have ideal scars; on the other hand, of these 108 cases, 48, after incision and curetting, were found to have ugly scars. From these statistics is seen that better results, from a cosmetic standpoint, are obtained from radical operation.

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PUERPERAL SEPSIS.

By John Fife, M. D., Red Bluff.

Read before the Medical Society of the State of California, April 16-18, 1901.

In the essay of Oliver Wendell Holmes on the "Contagiousness of Puerperal Fever," reference is made to the fact that in 1795 Doctor Gordon, of Aberdeen, published a treatise on the same subject, submitting proof of its infectious nature, and saying, "I arrived at that certainty in the matter that I could venture to foretell what women would be affected with the disease upon hearing by what midwife they were to be delivered, or by what nurse they were to be attended during their lying-in; and in almost every instance my prediction was verified." At this time the profession was almost a unit in ascribing the disease to visitations of providence; and to Doctor Gordon principally is due the credit of having launched that great truth, which, largely through the efforts of Holmes and Semmelweis, has become universally accepted, and which ascribes the disease, not to the "visitations of providence," but to the visitations of man.

Knowledge of its source led to the knowledge of its prevention. Practitioners no longer carried around, in their coat pockets, infected uteri, obtained at autopsies, and they became more and more generous in the use of soap and water, until, at length, a great advance was made by Semmelweis in his advocacy of solution of chlorid of lime for cleansing the hands. Finally, present methods, initiated by Lister, leave, it should seem, no excuse for series of cases in the practise of any practitioner. Yet such occur. Within a year I have been informed by a reputable practitioner that one of his colleagues had ten cases in as many successive lying-in patients. Knowledge of this fact alone induced me to accept appointment on this committee; and of itself it is a sufficient reason for appearing before you with a subject to which I can not hope to add to the sum of our knowledge a single item.

Isolated cases appear in the practise of the most conscientious and painstaking; but my own observation, coupled with the reports which appear so frequently in the journals, has convinced me that puerperal sepsis occurs with unjustifiable frequency, and the responsibility must rest mainly with the medical attendant, for his duty is not limited to efforts to render himself incapable of conveying infection; he must assure himself, with reasonable certainty, that the nurse adopts proper precautions, and that the surroundings are as clean as it is possible to make them. The weight of responsibility in these cases with the general practitioner in the country is great. His field frequently covers a large territory, and he is generally compelled, in the outlying districts, to intrust the entire after treatment to the local "midwife," who is usually armed with a syringe, which she views as a panacea for the ills of parturient women, and who knows at once too much and too little. Even at home he can rarely command the services of a trained nurse, and he is perforce compelled to exercise personal supervision of the after care of the patient.

Preparation of the patient has occupied much attention, and varies from the simple bath to the elaborate measures of the Dresden school. The observations of Williams and Kronig have shown that pathogenic germs do not exist in the vagina, whose secretions, it is believed, possess germicidal power, except as to the gonococcus. Not so the vulva and the vulval canal. Here, according to Edgar, in a proportion of cases pyogenic bacteria are found. It should seem, therefore, that preparatory scrubbing and douching of the vagina with antiseptic fluids is unnecessary, and consequently unwise, and that the bath, followed by scrubbing of the external parts, and sponging off the vulva and vestibule with an antiseptic solution, will fulfil all of the indications. Edgar insists in addition that, if possible, in introducing the sterile fingers, these parts be not touched by them. But the most important measure by far consists in the practitioner's ridding himself of infectious agents. It may be affirmed with confidence that at the present time, as in the past, the vast majority of puerperal fever cases are traceable to neglect of this important measure. The medical world is agreed that, in these cases, as a rule, infection comes from without; yet practitioners who resort to the most elaborate preparation for an important surgical operation are content, in obstetrical work, to give their hands a "lick and a promise" with soap and water, swash them with bichlorid solution, dip them in doubtful olive oil, and proceed to the examination. Surely exercise of the plainest common sense should point out to them their inconsistency. If records of the lying-in cases of these gentlemen were obtainable, they would undoubtedly show a high rate of morbidity, as well as of mortality, though the excess perhaps might not be ascribed to sepsis. But there is more in a name than Shakespeare would have us believe.

With the people "child-bed fever" and carelessness are often viewed as effect and cause, sometimes unjustly; and hence, it may be, malaria and typhoid, already heavy laden, have additional burdens thrust upon them; for, under these names, responsibility for sepsis may still be shifted to providence. Except in the presence of great emergencies, as, for example, severe post-partum hemorrhage, where there can be no question as to the choice of evils, the practitioner should prepare his hands with exactly the same care in obstetrical as in surgical work, and he should avoid soiling them with infectious material in his daily rounds. He who has had occasion to remove a decayed placenta without gloves has been taught by experience how difficult it is to free his hands from the odor. The vigorous use of soap, brush, and hot water for thirty minutes, followed by another brush, and bichlorid, carbolic, or chlorid of lime, for an additional thirty minutes, will not do it. But, after prolonged effort, his olfactories may convince him that he has succeeded. Let him place his hands in front of the nose of his dog, who is peculiarly attracted by vile odors, and the interest he (the dog) displays will at once undeceive him. And that it is probably not less difficult to remove cause than effect, I may cite the well-known fact that the microscope and the culture tube have shown that the most elaborate methods of hand disinfection frequently fail of their object. The importance of avoiding soiling the hands with infectious material, at all times, is therefore apparent. The clothing should not be overlooked. Notwithstanding the recent assertion of a New York sanitarian, that infection is rarely, if ever, conveyed by this means, the wise man will continue to change his clothing after visiting patients with smallpox, diphtheria, and other infectious diseases; and he will be no less careful in his attendance upon lying-in women not to wear clothing that may possibly have been soiled while attending autopsies, incising phlegmons, erysipelatous abscesses, etc.

In estimating the value of any special plan of treatment of this disease, three points should be maturely considered, namely, the degree of individual susceptibility, the variety, and the degree of virulence of the causative germs. As is well known, different individuals differ in their powers of resistance to disease; saprophytic is much less formidable than streptococcal infection, and the type of the disease differs at different times. Hence has arisen diversity of opinion regarding special methods of treatment. The same method may alternately be lauded by the many and condemned by the few, and condemned by the many and lauded by the few. All this will change only when we have reasonably exact knowledge of first causes.

Curettage, once highly esteemed, and still in vogue with many, is gradually being discarded as inefficient and mischievous,—inefficient in that it fails to move the cause, and mischievous in that it opens up new avenues for infection and breaks down the barriers nature has erected against her invaders. Intermittent flushing of the cavity of the womb, as Pryor states, can not reach the cocci in the deeper structures; but I believe he underestimates its value and exaggerates its dangers.

Antistreptococcus serum has been a disappointment, possibly because there are streptococci and streptococci, which, in the present state of our knowledge, are indistinguishable, but which differ in the character of the toxins they excrete. I shall pass over inunction of Crede's silver ointment and Pryor's method,—curettage and packing of the womb, and through a broad incision in the posterior cul-de-sac, of the pelvic cavity with iodoform gauze, the alleged benefits of which he attributes to breaking up of the iodoform and absorption of iodin by the blood,—to abdominal hysterectomy, which has doubtless saved lives, but which I mention only to show how desperate are the straits to which we are sometimes reduced in the management of this highly-preventable disease. "Causes, causes, and again causes, more and more we fall back on these as the chief objects of our attention."

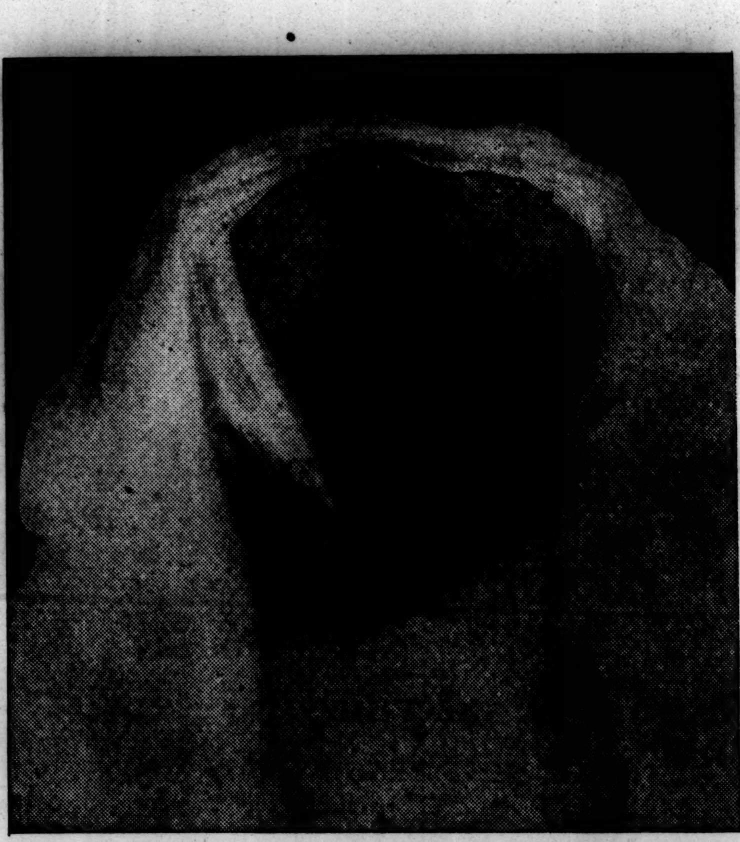
HOSPITAL REPORTS.

Gynecological Clinic, Cooper Medical College, Geo. B. Somers, M. D., in charge.

Reported by Minora E. Kibbe, M. D.

LEUCODERMA OF VULVA.

Case 3001. Mrs. S., aged 50, a native of Germany, 9 children, 3 miscarriages. For a year and a half has had pain in back extending from right lumbar region round toward umbilicus. Troubled with frequent urination. When on her feet she can feel the uterus come down, causing considerable pain. Complains also of intense pruritus. On examination, besides the prolapse of the uterus, both labia majora and the region about the anus show large white patches. The peripheral edges of these patches are bordered with quite dark pigment. The photograph gives an idea of its distribution. Cases of vitiligo or leucoderma are quite common in dark races, but the vulva is an unusual place for it to occur. This woman was very dark looking, like a Spaniard. She gave no history of the duration of the affection.



Occidental Medical Times

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THE SUPPRESSION OF THE TRUTH OF THE EXISTENCE OF CONTAGIOUS DISEASE.

The following letter, published in the *Evening Bee*, of Sacramento, July 17, 1901, corroborates so remarkably our position as regards certain charges recently made that we feel perfectly justified in reproducing it here:—

Quarantine was forced on Edmond Souchon, president of the Louisiana State Board of Health, by Dr. Carter, of the Marine Hospital Service, on the 17th day of September, 1898. Souchon had concealed the presence of yellow fever in New Orleans during several months, and had thereby spread the disease over the states of Louisiana and Mississippi. This murdering method of disobedience to the laws of Louisiana by Souchon was carried out by him in obedience to the commercial interests of New Orleans, which did everything in its power to have quarantine removed as soon as possible. After a commission from these commercial interests had gone to Washington, Wyman came to New Orleans about the middle of October, where he was wined and dined by the commercial interests at my club, the Boston; and, as a consequence, Wyman took off the quarantine about the middle of October.

On the morning of the day when New Orleans was declared by Wyman to be free from yellow fever five (5) new cases of that disease were admitted to the wards for white men in the Charity Hospital, and there were in those same wards fifty old cases of yellow fever, either dying or convalescent. As there are separate wards in that hospital for white women, for negro men, and for negro women, it would be a fair calculation to say that twenty new cases were admitted to the Charity Hospital that morning and 200 old cases existed in the special wards for yellow fever. This would give a total of 220 cases in the Charity Hospital, which is reserved for the poorest classes of the population, so that at least 1,000 cases of yellow fever existed in New Orleans when Wyman gave out the official falsehood that the city was free from that disease. The consequence was that a recrudescence of the epidemic took place by the influx of strangers and return of the inhabitants who had fled to the north to escape danger. Thousands ran back to the northern states from New Orleans after returning to it to find that the official dictum of Wyman was as false as that of Souchon. Many, however, found their deaths by believing Wyman, for the yellow specter makes short work of human lives when they are once embraced in its deadly arms, and gives no time to its victims to find out the truth and run away.

I told the truth about yellow fever to Monsieur Adrien Laurent-Cochelet, consul-general of France in New Orleans, and he, being an honest man, and in no way subservient to the murdering methods of commercial interests, but thinking only of his duty towards France and her colonies, promptly refused to give clean bills of health to any vessel going to French ports, and persisted in this refusal until the middle of November, when I assured him that the Charity Hospital was free from yellow fever, and he could conscientiously grant clean bills of health. Cochelet knew that I was working in the Pathological Department of the Charity Hospital, and was admitted to the yellow fever wards for white men to carry out some experiments to find out a chemical diagnosis of yellow fever, which I discovered, and published in the "Mississippi Medical Journal."

This official act of the French consul-general gave the official lie to the official acts of Wyman and Souchon in freeing New Orleans from quarantine, and it was telegraphed all over the world.

The commercial interests of New Orleans were furious, and sent congressional representatives and presidents of commercial boards to Cochelet, who received them with most courteous words and manners, but refused to budge from his position. They asked him for his authority, which he refused to give, telling them that it was the best possible, and would be accepted by his government. They threatened to have him recalled by his government, and went so far as to prefer charges against him to Cochelet's chief, the French ambassador at Washington, who asked Cochelet for the facts on which he had based his action. Cochelet gave the figures furnished by me, which showed clearly the prevalence of the disease, and my figures were confirmed by others. His chief referred them to the minister of foreign affairs in France, and Cochelet received shortly afterwards from his chief in Washington a commendation from the Foreign Office, in Paris, for his courage and honesty in defending the lives and property of Frenchmen in France and her colonies by exposing the official lies of Wyman. He was the only consul who did it. Dr. Carter was sent away from New Orleans for two reasons, Carter was anxious to escape from the morally vicious atmosphere of New Orleans, and he was too honest for Wyman's plans.

Wyman can not plead ignorance of the facts, as his official position enabled him to know the whole truth about the presence of yellow fever in New Orleans.

That Wyman has played the same game in San Francisco with the bubonic plague surprises no one here, and I congratulate the medical profession and all honest men in Calfornia that my friend, Dr. Blunt, of Texas, blocked Wyman's game by forcing the latter to publish the nine deaths occurring between January 1 and March 9, 1901, in the "Public Health Reports," as I blocked his game in New Orleans by having my friend Cochelet refuse clean bills of health to vessels until it was safe to do so.

John C. M'Kowen, M. D.
Clinton, Louisiana, July 4, 1901.

Accompanying this letter there was received a pamphlet detailing quite completely the evidence of the existence of yellow fever in New Orleans at that time, and the greater part of the testimony in a suit for damages, brought by Dr. Kohnke, who was at that time health officer of New Orleans, against Dr. McKowen, of Clinton, La., for slander, because he caused the truth of the situation to be printed in a newspaper of that city. The case was carried to the Supreme Court, where judgment was given the defendant and damages refused. The story presented reads like a verbatim report of our own trouble, except that our own local Board of Health stood honestly and gallantly for the facts. Every effort and threats of the most dire kind were made to conceal all knoweldge of the disease. The highest officials of the state, of the State Board of Health, and the local board were deeply and ignominiously involved. The domineering influences were the commercial and the financial welfare of the city. The health officer of New Orleans testified that he was determined "not to acknowledge the existence of yellow fever in New Orleans," "even if it leads to my death." Similar efforts to falsify the death reports were frequent, as is emphasized by the following: "Doctor, can't you make that something else? Can't you say in your report that the man died from uremic poisoning?" How like San Francisco! How many death certificates have been falsified here, no man knows. The same stultifying assertions were made as to truth of the diagnosis, to the value of scientific medicine and of preventive measures as exemplified by the following testimony of Dr. Kennedy: "Dr. Kohnke suggested to me at my first visit to his office that he would like to send up some of his sanitary men to take charge of things. I said, 'Doctor, I would not have you stultify yourself so. You have told me you would not accept my diagnosis, therefore, to your mind there can be no case of yellow fever in my house, ergo, there is nothing to inspect.' He said, 'There might be some germs in the bricks.' I said, 'I hardly think so when there is no yellow fever in my house.' The same disregard for law was shown by the complete failure to comply with the regulations by either state or national quarantine. The Governor was as criminally negligent in the performance of his duty to his own and the neighboring states as has been the Governor of California. Politics and commercialism ordered that the truth should not be known, and the press in almost every instance, as proven by competent testimony, was forced to deny the facts. The medical profession heaped discredit and dishonor on itself by its efforts at suppression. Dr. McKowen was forced out of the local society because he upheld the truth. Dr. Carter, of the Marine Hospital Service, asked to be relieved from such disagreeable surroundings. As has been the case in our city, many physicians were so enslaved by personal and public motives that even in the face of death they have defied the facts, and no doubt led many individuals to be sacrificed through willful and incomprehensible ignorance. The basis for the suit is briefly as follows:—

"The gist of the article averred to be

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THE HAHNEMANN HOSPITAL COLLEGE

libellous is that at different dates in the summer of 1898, beginning July 20, the plaintiff, as an official, was guilty of acts and conduct tending to suppress the truth in regard to the prevalence of yellow fever in New Orleans; that the truth was so suppressed, plaintiff aiding, abetting therein; and that in consequence a false notion of security and safety, of visiting and remaining in the city, was engendered, with the result that many people, trusting in the reports of good health conditions prevailing or to the absence of notice, equivalent to warning that they did not exist, were induced to remain in the city or visit the city, thus becoming subject to and infected with the contagion and conveying it away with them to different parts of the country,—all to the detriment of the public health and the sacrifice of many lives."

The evidence of the suppression of the truth brought out by these two epidemics is a sad comment on the honesty of men controlling our commercial and health affairs. It shows the power of money over local, state, and national officers whose duty it is to protect the health of our people. Such a spectacle renders future denial of the existence of disease unworthy of credence, touches severely the honor of our national government, virtually destroys the credit of our boards of health and the Marine Hospital Service, and brings disgrace on the profession at large. The claim is made that a national health officer, a cabinet officer, would remedy the situation. This is possibly true, but if the political and mercantile interests of our country were confident of this, no such office could be created at the present time; and when we realize that the quarantine of San Francisco; that the removal of Dr. J. J. Kinyoun; that possibly also the quarantine of New Orleans was virtually raised by the highest power of the land; then the power of a cabinet officer is questionable. One thing and one only will bring the nation and its health officials to a proper realization of their duty, and that is a severe and full-fledged epidemic, so virulent as to break down all barriers, and bring death and desolation to many homes and to those now prostituting their honor and name for commercial or private gain.

THE RECURRENCE OF PLAGUE.

Once more this dread disease has made its appearance in our midst. On July 8, 1901, through the inadvertence of some one of the Chinese inspectors or through some carelessness on the part of the State Board of Health, the death of a Chinaman was reported to the Marine Hospital officers. This is the first case of plague that has escaped the vigilance of certain interested people since the 4th of April. Shortly after the body was found, and before the diagnosis was made, a Chinese official was heard to severely reprimand the undertaker or his assistant for not reporting the death of this man to their special inspectors, making it evident that there are three bodies of inspectors at work to-day in this district: One appointed by the United States Government, the Marine Hospital officers; second, those appointed by the State Board of Health; and third, a special body organized in the interest of the Chinese.

The finding of this case produced as much consternation among the members of the State Board of Health as among the Chinese. On July 8 four more cases were found in a house of prostitution on Washington Street, which, at the time it was taken possession of by the Board of Health, was occupied by seven Japanese women, and at least eight Chinamen were seen in the building, when entered by the consulting physicians. Two of these cases died within forty-eight hours; the third, the only case of recovery in San Francisco, still survives; the fourth died within three days of the recognition of the disease. These cases came to light through a consultation called by Dr. Kurosawa, a Japanese physician, at which the clinical diagnosis of plague was made, which was verified by bacteriological tests before and after death. This outbreak of the disease is not flattering to the protestations of those who have denied the existence of the disease or who have claimed that the work recently done has stamped it out.

While at least 1,400 rooms have been cleaned and disinfected in this district, tons of filth, the accumulations of many years, have been destroyed, yet in one of the houses, which had been disinfected, four cases of plague have occurred. It is impossible to estimate how many more deaths or cases have been hidden away since the 4th of April. That this is a fact needs no further comment in these pages. It is inconceivable to believe that deaths among the Chinese who frequented this establishment have not been reported to the health authorities. The contrast between the conduct of the Japanese and Chinese on this occasion was quite remarkable. The Japanese at once requested that they be quarantined, and that measures both prophylactic and preventive be promptly instituted. The Japanese Consul urged the local board of health to use the Haffkine serum on all Japanese in the city, and many applied to the Board of Health for treatment. The Chinese, on the other hand, have desperately opposed all measures of prevention, either of a public or private nature. We publish elsewhere a complete list of cases that have occurred since the Federal Commission completed its work in February. We are very creditably informed that the State Board of Health deny that these last cases died of plague, even though their agents were present at the post mortems and saw that no other cause could be assigned for the deaths.

MEETING OF OREGON STATE MEDICAL SOCIETY.

The annual meeting of the Oregon State Medical Society will be held in Portland, on the 25th, 26th, and 27th of September, 1901.

At the last meeting of the American Medical Association, held at St. Paul, the constitution and by-laws of that body were altered and amended in the most radical way, and as the result of this action it is expected that that society will undergo great expansion; that many if not all of its objectionable features, which at divers times and places have led to dissensions and discord, will be eliminated, and a new era opened in which the medical profession of the United States will be more united, harmonious, and progressive.

The executive committee hopes to effect arrangements whereby the society will have the opportunity of enjoying an address from some physician or surgeon of eminence connected with medical teaching in the large centers of the east. When this arrangement is finally effected a special announcement will be made.

A PLAGUE RESOLUTION.

The following resolution, introduced by Dr. V. P. Buckley and unanimously adopted by the local board of health, records the philanthropic spirit that has actuated the members of the board and so graciously extends forgiveness to one to whom it owes no courtesy or favor, that we gladly reproduce it here.

Resolved, That it be the sense of this board that Governor Henry T. Gage in cooperating with the federal and municipal authorities for the purpose of placing the Chinese district of this city in a sanitary condition and eradicating the germs of plague practically conceded that the position of this board was conformable to the truth, and that the accusations heretofore publicly made by the Governor against this board were erroneous and unjust; and,

Be it further *Resolved,* That we appreciate this cooperation in the interest of the public health, and that we charitably accept this action as a sufficient retraction of the statements which he has heretofore published.

Seconded by Chief Sullivan.

THE ORATION IN SURGERY BEFORE THE A. M. A.

H. M. SHERMAN, M. D.

It affords us great pleasure to note that Dr. Harry M. Sherman, of San Francisco, has been appointed to deliver the oration on surgery before the American Medical Association at its next meeting, at Saratoga Springs, New York. This is a very high honor, not only complimentary to Dr. Sherman, but to the profession of our state. We congratulate the Association on this selection, and assure all that the highest hopes of the Association will be fully realized through the ability and enthusiasm of the very worthy recipient.

LANE MEDICAL LECTURES.

The Lane medical lectures for the year 1901 will be delivered in the lecture hall of Cooper Medical College, by Mr. Malcolm Morris, of London, England. They will begin on September 3, and the subject will be dermatology.

SOCIETY PROCEEDINGS.

CALIFORNIA ACADEMY OF MEDICINE.

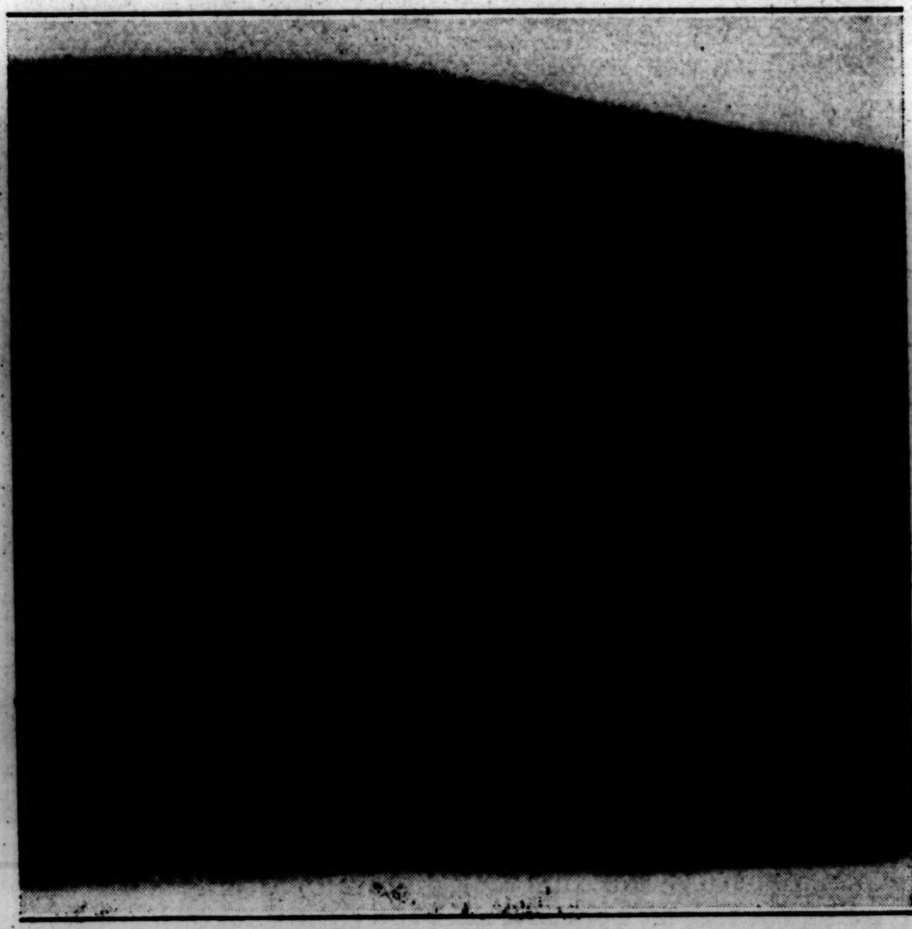
Regular Meeting, June 25, 1901.

Dr. D. W. Montgomery, the president, in the chair.

ROWLAND CASE, GUNSTOCK DEFORMITY OF ULNA.

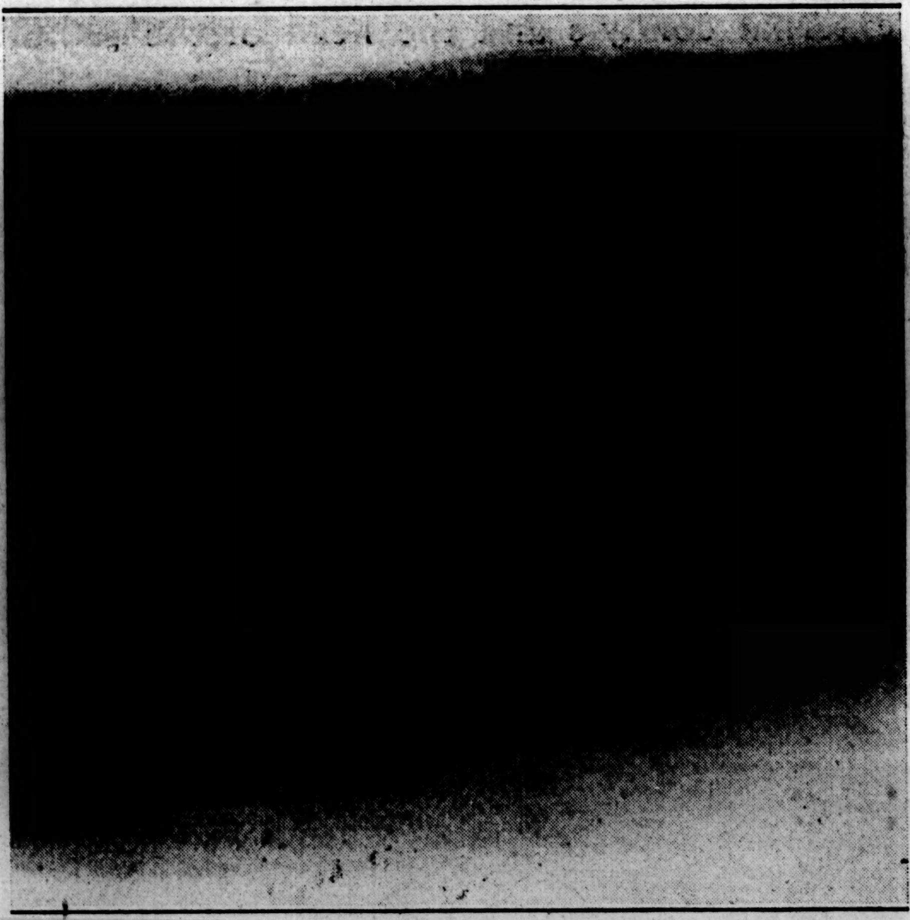
Dr. H. M. Sherman reports the following case—

This little girl, aged four years, was brought to me with a fracture above the elbow. The injury was some hours old, and the swelling about the elbow was considerable. For a complete examination she was anesthetized, and, by firm grasping of the joint, the bones could be plainly felt through the swelling. A fracture of the external condyle could definitely be made out on these points: A false point of motion just above the elbow, and some crepitus, the preservation of the continuity between the diaphysis and the internal condyle, and the association in motion of the external condyle and the head of the radius.



Rowland case diagnosed clinically, fracture external condyle.

The question as to the better position for the arm in the splints was decided in favor of full extension, on the ground that this position gave complete control over the abduction, and the adduction for the inner condyle and internal lateral ligament supplied a pivot on which the arm could be moved in a transverse plane, and the external condyle slipped up or pulled down, according as the forearm was abducted or adducted. A plaster of Paris splint was put on, with the arm in full extension and with the abduction made to match that in the uninjured arm. After about a week a radiogram was taken, and it apparently confirmed my belief that the reposition of the fragment was perfect. At intervals the splint was removed and gentle, passive motion was made, with attention always to the maintenance of the relation between the fragments. After about four weeks in the splint, the arm was taken out and left free of restraint. Now, even at this time, it was noticed that the abduction was not so much as it had been made, and yet the arm could be put into position of proper abduction with a little effort, which caused pain. There was flexion of about thirty-five degrees from the position of full extension. During the first month after the splint was taken off, the forearm became adducted to the extent which you see here, producing perfectly a gunstock deformity, or cubitus varus. This deformity was not due to faulty position of the internal condyle, as Allis has taught; nor did it occur in a case of supracondyloid fracture, as Stinson has sugested it usually did; nor, finally, did it occur because the possibility of its occurrence was not thought of. It did occur in case of fracture of the external condyle; it did occur, in spite of efforts to prevent its occurrence; and it did occur chiefly after the arm had been taken out of the splints in which it had been for four weeks. Now, examination of this elbow shows around the external condyle considerable thickening, due undoubtedly to plastic effusion for purposes of repair. I can only explain the adduction of the forearm by supposing that, as healing took place, there was either an excessive exudate between the fragments, which pushed the lower one down, and so adducted the forearm, or that, as the result of the injury, there has been some overgrowth of the bone and cartilage, which make up the elbow; that this has been limited to the outer part, with the result that the radius has been pushed down and the forearm adducted. That changes of some sort took place in the lower end of the humerus after the splints were left off, is further evidenced by the fact that the amount of motion which the joint permitted when the splints were removed lessened rapidly, until hardly any motion was permitted, and since has gradually increased to and beyond its original point, and is still steadily increasing. A radiogram taken after the injury shows practically the same picture as that taken when the break was a week old.



Rowland case shows gunstock deformity after arm had been treated for fracture of external condyle in extended position

Dr. Geo. B. Somers: I have nothing to say in reference to the interpretation of the radiogram, but rather in reference to the position in which the arm is treated. I have always felt that in fracture about the elbow-joint the straight position is by far the best in which to put up that injury, and it seems to me from my experience and study that that ought to be adopted by the profession as the correct one for treating fractures at the elbow-joint, unless there are direct indications at the time of the injury and examination, for some other method. For instance, in a child like this, with the arm extended, it corresponds with the other side, and then, if we find it would not stay in place, I would hunt for some other position, for instance, the position of that of an obtuse or right angle, of complete flexion. I can offer no other suggestions as to the treatment, but, it seems to me, if the straight position is carried out at an angle corresponding with the other side, that no other form of treatment brings about better results. I would like to have the radiogram interpreted more thoroughly. I make out the olecranon process, but that is entirely separate from the humerus. It seems to me to be in contact with the fossa, and it strikes me, from the appearance of the outer portion of the ulna, as Dr. Barbat suggests, there might have been an injury to the olecranon, a transverse fracture, and the other portion concealed in the fossa.

Dr. J. Henry Barbat: In looking at this first radiogram, my interpretation would be that this cleavage line is not a line of fracture. While that is not absolutely a certainty, from the appearance, however, I would not say that this is a line of fracture. It does not present the appearance of a line of fracture, but that of the end of the epiphysis before union with the epophysis. It would rather appear to me to be a separation of the cartilaginous end. I do not think the humerus was broken, otherwise the radiogram taken four or five days after the injury would show definitely a line of fracture, as it would be an impossibility to so accurately adjust the fragments as not to show a sign of a break at that point, and I feel that it must be a separation of the epiphysis, and that would account for the increased amount of material between the ends of the radius and humerus, and would give the gunstock deformity; but I could not account for the lump felt in front; it would appear like the coronoid process, and without a history, I would think that it was the coronoid process projecting out and pulled up by the brachialis anticus.

Dr. H. M. Sherman: With regard to the possibility of the lesion in this case having been the separation of the epiphysis, it has to be said that the separation could only have been of a part of the epiphysis, for the internal condyle was continuous with the shaft. I can not object to this interpretation, for it is plain that the little line of cleavage is at right angles to my clinical idea of the direction of the line of fracture. I never could see, in the radiogram, the line of fracture I supposed existed. But whether it was the separation of the outer half of the epiphysis or of more, it still was clinically a fracture of the external condyle. The interest now centers in the question as to what is to be the end result. I should expect that the separated epiphysis should unite to the shaft by bone, and the growth of that condyle should cease; that the continuance of growth in the inner condyle should gradually correct the existent deformity, and then overcorrect it, so that we should finally have an exaggerated carrying angle. I do not think that the mass felt in front can be the coronoid process. Dr. Brown and I both examined the child under chloroform, and we could hardly have missed the coronoid process. I think the mass is new bone produced by torn up and dislocated periosteum. The difference between the two pictures in the position of the ulna relative to the humerus is due to a slight difference in the positions of the arms on the plates. The ulna, on a slightly posterior plane than the humerus, would move a little outwards if the arm was rotated inwards, and with so much cartilage at the joint, which does not show in the picture, this motion would appear greater. Still it is obvious that the relations between the ulna and the internal condyle are not absolutely normal. As regards the treatment, I selected the fully-extended position in this case, so as to control the relation of the forearm to the arm and retain the carrying angle, but I have been much impressed with Roberts' suggestion and practise, to do a formal open operation, ascertain exactly the lesion, replace the parts, and retain them. I referred in Sacramento to a case in which I did this, and secured a perfect result. I believe that the fragments can be retained by catgut sutures passed through the fibrous and periosteal tissues, or even through the cartilage in the case of an unossified epiphysis, and that the use of nails may not be necessary. I shall certainly do this at the first opportunity.

FRACTURE OF THE ULNA.

Dr. H. Kugeler read a paper entitled "Compound Fracture of the Ulna Followed by an Unusual Deformity." Case 1. A. B., 11 years of age, sustained an injury six years ago, which resulted in compound fracture of the ulna of the right arm. A dressing was applied, in which the limb became very much swollen, but was allowed to remain, and, when removed later, there was a large slough on the flexor and extensor surfaces of the forearm, as indicated now by the extensive scars. At present the patient seeks relief from the following deformity: The hand is flexed toward the ulnar side; the thumb is straight, but firmly fixed along the palmar surface of the index finger; its metacarpal bone is immovable; the fingers can not be fully extended; if the first interphalangeal joint is straightened, the second is flexed, and vice versa. Flexion of the fingers is good, but increases the lateral displacement of the hand. Patient has learned to write with the hand, and plays the madolin. On examination the scars on the forearm are found to be superficial and easily movable. With slight pressure, the hand can be made to resume a straight position, but this causes marked flexion of the fingers. The patient can not straighten the hand voluntarily. The ulna is six cm. shorter than the ulna of the other arm, the radius being two cm. shorter than that of the sound side. The fluoroscope shows the decided difference in length between the ulna and radius, and also that there is a curving of the ulna toward instead of away from the radius. The entire forearm appears atrophic; there is a decided lack of development of the ulna and some of the radius, the former probably due to involvement of the epiphysial cartilage at the time of the injury. The other symptoms may be the result of infection following the sloughing, also from involvement of the nerve supply.

Case 2. The boy was brought to me a week ago, and I was requested to do something for him. The history I got was as follows: Six years ago the boy sustained a compound fracture of the ulna. His mother was sick at the time, and the fracture was put up by the man who was attending to her, and the child cried continually during the setting. It was put up in a plaster cast. At the end of two weeks it was all black, and it took a long time to heal. A large slough formed. They let it go, and it got worse, and the hand contracted. A year ago some one went at it and tried to do something. It continued to get worse, and they were advised to massage it, which was done for one year, and the thing was getting worse and the hand stiffer and drawn down more on the ulnar side. I thought I would bring him here before doing anything with it.

Dr. Sherman: I have never seen exactly this case before. Usually where the growth in the forearm is interfered with, it effects the radius more than the ulna. It is more common to have the epiphysis of the radius broken off than that of the ulna, as we get a Colles' fracture in the adult. Where we have the radius interfered with, we get a club hand, a varus hand instead of valgus, which this is. I think there has been a synostosis of the ulnar epiphysis, and that the development of the ulna has been stopped, but the radius is developing, and the deformity will get worse. Whenever there is anything that interferes with the nutrition of the epiphysis, there is direct interference with the development at the epiphysis, and reflex interference with the development of the whole limb, as is seen when there is a tuberculosis effecting the epiphysis, and in this case the atrophy is called joint atrophy. The shortening is due to both the direct and the indirect action, and in this case the direct action has caused the shortening of the ulna and the indirect action has caused the shortening of the whole arm and the hand. I do not know exactly how to tell you what to do. The only thing that occurs to me is to lengthen the ulna. The stiffness of the thumb is due to matting of the tissues. I think it might be broken up, but I would hesitate a great deal before trying it. Usually in children, where there is matting of the tissues, it will work loose itself. It will constantly work in the range it has, and break up the adhesions gradually; I should think we might expect it here. If the lesion had been at the elbow-joint, and had interfered with the musculo spiral nerve, you would then get a condition of stiffness in the fingers; but this case does not seem to be a lesion to a nerve.

Dr. J. Henry Barbat: I believe that some experimenter showed that simple fixation of the joint does not lead to ankylosis, having kept the leg of a dog in splints for six months; but with the history of this case we see that it is different. There is a large amount of swelling and sepsis, and we can readily imagine the large amount of inflammatory deposit in the joint, resulting in an ankylosed condition. I think it is due to the large amount of serum thrown out and the slow absorption. In a case like this in the child, I do not think I would hesitate to take out a piece of the radius and bring the two ends of the bone together. It is not a nice thing to do, but in my experience it is the easiest thing.

Dr. Hunkin: I do not think that ankylosis can be due to plaster of Paris. I have seen it used as long as three years in the hyperflexed and in the hyperextended position, and there was no ankylosis. I do not think that the ankylosis in this joint is due to malposition, as it is easily carried into normal position. It seems to me, if I were to look after that case, I would not do as either gentleman would do. I would try a retaining splint, put the hand in proper position until the growth is attained, and then do what is necessary at that time. To do what Dr. Barbat said, you would have to do it in a year again, and every year until he is eighteen years old. We could not operate at the epiphysis, as it would result in a permanent shortening of the arm, and it would be almost as long from the elbow down as from the elbow up, and when he is eighteen years old he will have a much smaller arm than he should have, and the radius will continue to grow. Provided the positoin of the hand can be maintained, the boy will have an arm much longer than if the growth stopped now. It can be kept in splints with better results than we have at present.

APPENDICITIS AND PELVIC ORGANS.

Dr. Geo. B. Somers read a paper, "The Relation of Appendicitis to Diseases of the Pelvic Organs."

Dr. J. Henry Barbat: The case of Dr. Somers goes to show what I have advocated, that in all peritoneal operations, all operations involving a laparotomy, where the appendix is accessible, hunt it up, and examine for disease, and when we have time and the patient is in good condition, and there is no need to hurry, remove it. It only takes five or ten minutes, and we may save an extra operation very often. I have come across a number of cases very similar to this, where it was difficult to say, before the operation, whether the symptoms were due to chronic appendicitis or tubal or ovarian disease, and it could only be determined by a laparotomy. In one case my confrere insisted that it was tubal trouble, and I that it was appendicitis. When we opened up, we found an acute appendicitis. We found the appendix adherent at a point to the ovary, and an abscess was forming, as a result of adhesions. Possibly twenty-four hours would have made a serious condition, but we took it out en masse. I have had a number of cases in which chronic appendicitis caused a disease of the tube and ovary, and enough to cause intense pain continually, and in most cases increased at the menstrual epoch, and I can account for the increased pain, when a large ovary presses on the appendix, which is congested, causing an increased amount of pressure. The adhesion may not be larger than a No. 1 catgut. The woman may not be able to attend to her duties, and when it is removed, she is relieved, and we do not feel that our operation is for nothing. Some of my prettiest work was the removal of an ovary with adhesions, and with a perfect cure afterwards.

Dr. Kugeler: I wish to say that I saw a case just a few days ago, bearing exactly on this point. A woman was brought to the hospital that two men had seen. She was an elderly woman, suffering with menorrhagia and other difficulties, and they were satisfied that there was a tumor on the right side. When the abdomen was opened and examined, I told them that I could not find any tumor, and they were shocked, and insisted that it was there. I found a thickened adherent appendix, which was the cause of the trouble, and I took it out, and I am satisfied that it was the cause of the trouble. It was not atached to the tube or the ovary, but just back of the broad ligament.

Dr. Sherman: The interesting point is the deductions made by Dr. Somers and the fact that he suggested that we may have dysmenorrhea from a practically normal uterus, when the case is appendicitis. I do not know but what Dr. Somers was right in not trying to tell us how to differentiate between one condition and the other. It would be a difficult matter.

STATE MEDICAL SOCIETY.

The meeting was called to order by the president, Dr. Ross, of Sacramento, at 11:55 A. M. Addresses of welcome were delivered by Col. Weinstock, Dr. J. A. McKee, and Dr. Wm. Ellery Briggs, of Sacramento.

The annual address of the president was read by Dr. Thos. Ross.

NEUROLOGY

Dr. Hoisholt read a paper on "Simulation of Insanity."

J. W. Robertson, Livermore: I have listened to this paper with a great deal of interest. I know of no paper or text-book that gives anything like so full a discussion of a subject so important to all of us—for there is no physician who sooner or later will not be called upon to express some opinion as to the mentality of a patient. In California, as a rule, insanity is simulated merely for the purpose of escaping punishment, and it is sometimes most difficult to judge accurately as to the mental state. Yet nothing is more difficult than to successfully simulate insanity, when a trained observer passes judgment. You must remember that not all symptoms are mental, and that bodily conditions are vastly important. Each great classification has its own special symptoms that must not be confounded. With acute mania and melancholia we have bodily wasting, stomach disturbances, and certain skin conditions that are unmistakable. In certain demented conditions we have every evidence of organic lesions, while in the paranioiac, the freedom from ordinary physical ailments arouses our suspicion. It may be possible to successfully simulate certain paranioiac states, but only one thoroughly versed in this subject can do it. As a rule, either melancholia, mania, or dementia is attempted, and while the physical symptoms are wanting, the mental state, as a rule, is overacted. I well remember that in the case of Fredericks, who murdered a bank cashier in San Francisco, the overacting was so great that feigning was self-evident. When left alone he was fairly quiet, but the moment he was spoken to or visited, his outcries and gesticulations became so violent as to evidence overacting. Especially was this true in the court room, where all his motions were purposeful, and he only quieted when something of interest to himself was being testified to. Conviction at once restored his calm. A Chinaman tried before Judge Murphy well illustrates Dr. Hoisholt's point. When placed on the stand, to the question, "How old are you?" he answered, "My old shoes; "Where were you born?" "My hat;" "What is your occupation?" "My coat," and so on indefinitely. These replies were so irrelevant that they could not deceive. His conviction also cured his dementia, and ever since his return to San Quentin he has been a model cook. No man can be a maniac constantly, and few are so violent that they will not become quiet long enough to answer even intelligently. Few dements are so demented; if they answer at all, they will answer to a certain extent responsively. The really trying cases are those who have committed some crime under the influence of a delusion, and yet to the world appear sane and responsible. It is these cases who will not plead insanity, yet who really are insane. Our courts hold strongly to the "mad-dog" theory. In other words, a man must not only be insane, but so delirious and frenzied as to be unconscious of his actions. Recently a man became suspicious of his wife, and believed she was trying to poison him. One day he came home, tasted the soup, and, with a curse, declaring to her that she had been at it again, pulled a pistol, and killed her; yet, because he was apparently rational after the event, he was tried, declared guilty, and our Supreme Court confirmed the sentence. As a rule, the more cold-blooded the crime seems, the less justification there is, the more liable is insanity to be the real basis for the crime. Sudden anger, justifiable passion, proper resentment for some deed done against one, is not insanity, yet it is for this class that temporary insanity is so often pleaded. To me there seems but one remedy. Let a criminal asylum be built within the walls of San Quentin, and let everyone who pleads insanity as a defense of crime be judged. If found insane, let them be sent there. The community at large must be protected, and it is but right that any one who has committed a crime while insane should be sent there. Whoever commits such an act may do it again. It would be regarded not as a crime, but as a proper step for the protection of the public.

CLINICAL MEDICINE AND THERAPEUTICS.

A paper on "Bubonic Plague at the Close of the Nineteenth Century" was read by Dr. D. Powell, of Marysville.

Dr. H. D. Lawhead, of Woodland, read a paper, "A Review of the Clinical Features and Treatment of Plague."

Dr. W. H. Kellogg, of San Francisco, read a paper, "The Pathology and Bacteriology of Bubonic Plague." [Published at page 259.]

Dr. S. J. S. Rogers, of Marysville, read a paper, "The Prophylaxis of Bubonic Plague."

Dr. J. J. Kinyoun: In acknowledging the great honor conferred in your invitation to open the discussion on bubonic plague, I regret the circumstances were such as to prevent me from offering for your consideration a paper covering the main topics of this subject. In lieu thereof, I must crave your indulgence for the informal manner in which I may present these remarks. Before entering this subject, I wish to disavow any intention of inflicting on your honorable body all that may appear to be contained in this bundle of papers now before me. These are a few of the notes and data which I have been able to collect during the past year, concerning cases of bubonic plague occurring in California, I shall therefore use them simply as a text upon which to base my few remarks.

The subject of bubonic plague is one of lively interest to the medical profession, not only confined to the Pacific Coast, but to the whole country as well. The pan-demic prevalence of plague at the present time, its peculiar behavior during its prodomal and pre-epidemic state, lends all the more interest. I have listened with close attention to the papers which have been presented, and am more than gratified to know that this subject has been receiving notice from other members of this society, outside of the once-supposed close corporation of the San Francisco Board of Health, and a few others, not omitting your humble servant. We now feel confident that the few grains of truth which have been scattered will find a fitting lodgment in congenial soil, and that good may come of it. The records of the past furnish us with vivid pictures of awful ravages, the dissemination of nations, the obliteration of the population of cities, and even at the present date we have instances of these dire effects, as chronicled from India. Unfortunately for us, there is little record of the behavior of this disease before it assumed the phase which makes an indelible impression on the minds of the people, and it is rare to find anything noted of its presence until the numbers of its victims are so great that its existence is beyond question. It must be said that the history of a people or of nations is best written when they have ceased to exist. It may also be said of an epidemic of plague. A more accurate description of the epidemic is given after it has passed and gone.

We now recognize that we are dealing with a disease, the cause of which has been known only a few years, and therefore our accurate knowledge regarding it is limited to the observation of less than a decade. It is very evident, from the experiences of those who have been brought into contact with the disease, that we are only on the borderland, as it were, of its life history, and much is yet to be observed and recorded before we are able to complete the knowledge of all its phases and life history. It is a mistake to believe that the disease must assume the same status which it once occupied in the past, particularly in such countries as our own, where the conditions of the present are in contrast to those of the middle ages, and, moreover, to be disappointed that the experiences of the dark ages are not duplicated, and deny that the disease, as now presented, known, and designated as plague, is not the plague of olden times. If the conditions were the same as when it reaped its full harvest, I am confident that the number of its victims would be equal to any record of former times. I would even venture to say that if the true statistics were now recorded of its ravage in China, where conditions of living are worse, the horrors of its ravages would be pictured in the same lurid hues of former times. There have been many explanations offered why a disease has, during an epidemic, suddenly declined and disappeared, which in other instances lingered for years thereafter. These explanations are anything but satisfactory. Why the disease has such a varied and checkered career, while it becomes epidemic in one place and endemic in another, and why it spreads with the rapidity of a prairie fire in Bombay, and is not present in Macao (notwithstanding the free connection held with Canton and Hongkong), we must answer, We do not know. It can be said with reasonable certainty that plague is at first a slow-spreading disease, that it never assumes an epidemic state for a period more or less long when once introduced into a place. There is no analogy between it and cholera, yellow fever, or the acute exanthems. It is a disease sui generis, and must be judged independently from all others. Certain conditions must be present for the development and spread of communicable disease,—the susceptibility of reagent and the environment and natural conditions necessary to propagate the particular species. When all these conditions obtain, it is natural to suppose that the foci of infection can more readily be established than when one or more are wanting. This applies to plague.

The many forms which plague may assume, taken together with its insidiousness, the inexperience of the medical profession in general with plague, makes it easy for this disease to exist for some time in a place before its true nature may be recognized. It is seldom, if ever, therefore, that plague is recognized a priori, unless a number of cases of the frank type, i. e., bubonic form, make their appearance, and follow one another in rapid succession. These ideal conditions, for a correct diagnosis, are more of a theory than a condition. Usually when we attempt to write up an outbreak of plague, we will find, on sifting the evidence, that it has been present for weeks, months, and even years, before it has impressed itself upon the public notice. This statement may be too broad, and needs to be qualified, in so far as its general application. Such a condition would not, in my opinion, exist among those of the Caucasian race; but when we deal with the alien races, such as the Mongolian and the Aryan, we meet with difficulties which are not to be thought of when we are dealing with those of our own race.

The clinical manifestations of plague are varied. They are almost as many as attributed to that much-abused disease, malaria. It may resemble, in whole or in part, and may be confounded with, anthrax, carbuncle, tonsilitis, streptococcal affections, scepticemia, erysipelas, pneumonia, bronchitis, peritonitis, typhoid, typhus, rheumatic, relapsing, and malarial fevers, syphilis, mumps, and acute miliary tubercle. One can readily appreciate the difficulties which may beset the path of the clinician in making a diagnosis of the first case. Montenegro states that the typical case of plague is a rarity. "It may resemble other diseases so closely that it will be impossible to determine it, unless by post mortem findings, supplemented always by a bacteriological examination." The methods employed by my friend and colleague, and, I might add, "co-conspirator," Dr. Kellogg, in determining the diagnosis in cases suspected of plague, are so complete that further comment from ourselves, save that of commendation, would be superfluous. There is only one thing which has occurred to me that might be suggested, and that is the occasional failure of the bacteriological examination to isolate the plague germ, even when the clinical symptoms and post mortem lesions are characteristic. Sometimes failures of this character happen, as has been noted in Bombay. The explanation offered is that the bacteriocidal and bacteriolytic constituents of the cells may in some way become increased, so as to destroy the viability of the organism. Some experiments reported from the Institute Pasteur, in 1897, prove this. The bacteriological examination intra vitam may sometimes fail on account of the absence of the organism from the blood and the inability of the operator to puncture and aspirate the contents of the enlarged gland; and, lastly, the rapid post mortem changes, which are so characteristic, may obscure the result. Occasionally considerable difficulty is experienced in the isolating of the bacillus from the fluids or tissues, even when it is present in great numbers, on account of its disinclination to grow on an artificial medium. In these exceptional cases, as well as in all others, the bacteriological examination should invariably be supplemented by animal inoculation. It would be axiomatic to state that the recognition of the first cases is the sine qua non in the suppression of plague, for the sooner the discovery, the better will be the chances for its eradication. The task of recognition is not easy, as we would be led to believe by those who have had large experience with the disease when it becomes epidemic. We can not accept the statements of Cantlie, Kitasato, or Simond as to the ease with which the disease is to be recognized by these clinical manifestations. It must be remembered that the statements of the above-mentioned observers are based on their experiences, after the plague was epidemic, and when every one was on the qui vive to recognize it. If the majority of the first cases presented the classical symptoms, such as fever, prostration, delirium, and glandular swellings, it would be an easy matter to make a diagnosis. Unfortunately these conditions are so frequently absent or masked that it is only after the disease has become thoroughly planted that suspicion is aroused as to its true nature. There is another factor which must be considered, and that is, the first cases usually occur under the most unfavorable circumstances and conditions, and in wholly unlooked for places. It is seldom, if ever, that the first cases are seen in hospitals, where accurate clinical observation can be made. It is more frequently the case that a physician is summoned when the undertaker should be called. This is particularly applicable to the Chinese race, for here the undertaker's services appear to be held in higher esteem than those of the disciple of Aesculapius. The plague is undoubtedly a disease which is closely allied to and is concomitant with squalor, dirt, and filth. The unsanitary habitations, the unhygienic conditions of the occupants, are known to be a potent factor in keeping alive the infection and the means of dissemination of the plague. Certain food products, which are held in high regard by the Mongolians, are thought to have been the medium through which the disease was introduced into the Hawaiian Islands. Certainly it is reasonable to believe that it was carried from Honolulu to one of the adjacent islands by these Chinese food products. The rodent appears, by common agreement, to be the chief agent in the spread of plague. It is primarily a rat disease, becoming secondary to man. Some interesting observations on this point are brought to our notice in the report of plague in Kobe and Osaka, recently published by Kitasato. This report presents some remarkable statements regarding the part the rat plays in the dissemination of the disease. He says in part: "From the middle of November, 1899, to the end of January, 1900, 20,000 rats were paid for in Kobe and 15,000 in Osaka. More dead rats were found in Kobe than in Osaka. Of those found dead in Kobe, about one-fifth were infected with bacillus pestis. In Osaka one-tenth of those found dead were infected. The territory in which the pest-infected rats were found was more extensive than that of the cases. The relation of the individual cases to the rats is not fully evident. However, it can be said with certainty that the rats take the disease first, and afterwards, man. This is probably due to the fact that rats have more opportunity to come in contact with the infected material than man." The same has been observed by the health officials in Sidney during the recent epidemic of plague, which corroborates the statements of Kitasato, in effect, that the distribution of the cases of plague was coincident to the territory in which pest-infected rats were found. Insects, such as the house-fly, the bedbug, mosquito, ant, and flea, are believed, by many observers, to disseminate plague. The Yersin and Nuttall experiments with the common fly demonstrate that this insect may become a potent factor in the dissemination of plague. The Japanese investigators believe that the bedbug may transmit it from man to man. It has not been satisfactorily demonstrated that the mosquito plays an important part in the transmission of plague. The observations on this point made in the Bombay plague hospitals, where every condition was favorable to the mosquito theory, the results were practically negative. Simond says, in his exhaustive report on plague, published in 1898, "that the flea which infests the rats is the cause of the spread of the disease among them. The infection from rat to man takes place through the intermediary of the flea." Laboratory experiments demonstrate beyond a doubt that the disease can with certainty be transmitted from rat to rat by fleas. It will require further observation and experimentation to prove that the particular species of flea infesting the rat will bite man. So far, this has not been proven, and the exact manner of the spread of plague from rat to man is not known. It is also worthy of remark that rats are the first to be infected. Rats are first observed to be sick, and, after a length of time, are found dead. It might be possible that the pest organism, when first introduced into a place, is, by reason of its environment, in an attenuated virulence, and requires several passages through animals such as the rat before it is virulent to man. Rats do not confine their evil work to land alone, but vessels have been known to have been infected by them. In fact, it is now believed that they are the means of carrying the infection aboard ship, and its dissemination to the personnel. The rat also becomes an intermediary between the infected cargo and man, as noted in the following instance: "The steamship Friary arrived at Hull, England, about eighty days out of Montevideo. At this latter place sporadic cases of plague were reported from time to time. When the vessel was several days from port, two of the crew sickened and died of what was afterward determined to be plague. On the vessel's arrival at Hull, all the remainder of the crew were well. A few days later, after beginning to discharge cargo, two of the crew sickened with what appeared to be influenza, and were sent to the hospital for treatment, one of whom died within a short time of symptoms of pneumonia. About this time several dead mummified rats were found in the hold among the cargo. This, taken together with the illness of other members of the crew and dock laborers, caused a more accurate examination of the cases. When this was done, it was demonstrated that the so-called cases of influenza were in reality plague. An inquiry developed the fact that all the cases had come in direct contact with the dead rats. A further examination of the vessel was held, and there were found other dead rats, and some sick. A bacteriological examination demonstrated them to be pest infected." Another steamer arrived at Hamburg, from Rosario, Brazil, where plague prevailed. This vessel was more fortunate, as no sickness had occurred en route, nor was there any on arrival. The quarantine inspection revealed several dead and sick rats in the hold. These were examined, and found to be infested with the pest bacilli. Here was an instance where the cargo infected the rats then on board, which infection evidently came from infected cargoes, as no direct communication had taken place between the vessel and shore. Another memorable instance was in the case of the steamer Coptic, which left San Francisco in August last, arriving twenty-one days later in Yokohama, having on board a case of plague. The case was that of a Chinese, who embarked from Honolulu, coming direct from the country, and having had no communication with the city. He was taken ill about two days before arrival at Yokohama. On cleaning out the compartment, two dead rats were found, one directly under the bunk occupied by the sick Chinese. Both rats were found to be infected with plague. It is believed that the infection in this case came from some material, such as dirty clothing, taken on board at San Francisco. In this case it was clearly demonstrated that the infection was traced to the rats. Dr. Ruffer, the superintendent of the Egyptian quarantine, states that the majority of the cases of plague occurring among the pilgrims coming under his observation were due to the infected clothing. The disease was introduced into Kobe from Formosa, by a box of clothing of a soldier who had succumbed to plague in Formosa. Evidence has also been brought forward that plague was introduced into Madagascar and Oporto by cargoes of rice, and into Calcutta and the western part of Japan by bales of cotton. Whether the rat played the important role of intermediary in the above-mentioned instances is not stated. There can be no doubt that the disease can be and is transmitted from person to person, by direct contact with the discharge of those sick, and that the disease can be transmitted long distances by those slightly ill with a mild form of plague, known as pestis minor. Several instances of this character have occurred on vessels from India arriving at London. Two cases died of pneumonic plague a few days or weeks after arrival. The tonsillar and pneumonic forms are by their nature the most highly infective, because of the myriads of pest organisms which are thrown off in the sputum. The bubonic and septicemic forms of plague are not the mild and innocuous diseases, as one may be led to believe. In a general way it may be said that as long as the bacilli are localized in the glands and blood, and are not thrown off through the mucous membrane, the disease is only mildly contagious. It must be remembered, however, that even the mildest of these cases may suddenly become most virulent and infective, as those primarily affecting the respiratory tract. The tendency of all forms of plague is to be attended by sub-mucous hemorrhages; thereby the bacilli gain an exit through the mucous membrane. Just at what time and under what condition this will occur can not be predetermined. It would be far safer for the public, and better for the physician and health officers, to regard all forms of plague as plague, rather than an attempt at splitting hairs over the commercial distinctions of bubonic and "bubo-pneumonic" forms of the disease. Another agency which may be mentioned is a class of food products which is imported from Canton and Hongkong by the Chinese. This class of articles has been held by the authorities in Washington as liable to become infected with the plague, and thereby be the means of introducing it into this country. The Hawaiian authorities at the present time impose absolute prohibition against these, and for all purposes the same prohibitions are in effect at Pacific Coast ports. This prohibition has added not a little to the trials and tribulations of the quarantine officers, in their attempts to have this class of merchandise conform to the prescribed regulations. The Chinese feel very resentful against any one interfering with this class of goods, and so use all the subtleties of their race in attempts to run the gauntlet of the quarantine without detection. They are much surprised when articles listed as "silk and canned goods" are apprehended as dried duck and ducks' gizzards and ancient eggs, and are disinfected in accordance with the regulations for articles of their class. That this regulation was justified, I have only to recall an incident which took place in Chinatown, San Francisco, on the 8th of January last. A Chinese was found dead of plague in a cellar in Washington Street. I quote from Surgeon White's report: "The corpse of this Chinaman rested on a board, one end of which was resting on a trestle, and the other on a box of 'Chow,' intended for the consumption of the Chinese people. Piled up behind the man were dozens of other boxes and bales of 'Chow.' In fact, the man died in his store, he being a merchant in a small way, and the room was filled with food products intended for distribution to country districts. I leave you to draw your own inferences." I am credibly informed that the greater part of these food products are prepared and stored in the dwellings of the lowest class of Chinese in Hongkong and Canton, who live under the worst sanitary conditions existing. This being the case, it is easy to imagine how this class of food products may become a medium of the dissemination of plague. In consequence of this prohibition, the Chinese have used every means in their power to break down the regulations and render nugatory even the law bearing on our subject. They have again appealed to the United States Circuit Court for a redress of their grievances, in order to prevent disinfection of their food products. The Chinese have entered into collusion with their colleagues in Hongkong, and have deliberately forwarded a cargo of such prohibited merchandise (which has been rejected by the officers in Hongkong as dangerous), in order to bring about this suit. This particular consignment of goods was landed in direct conflict with the quarantine law, and regulations made thereunder and immediately thereafter, the quarantine officer was enjoined by the Chinese Six Companies from attempting to carry out the order of his superiors, and to-day the articles in question, which are believed by Dr. Kerr to be dangerous, lie unprotected on the docks of San Francisco, where they may be and are a source of infection to the countless vermin that infest these docks. This matter has gone into more length than was at first intended, and it must needs be to show where the responsibility lies. My orders to the steamship companies were that, before these goods could be taken off the vessels and landed, they must be disinfected and returned to Hongkong. They were not. But to return. The length of time the pest bacillus is viable has not, so far, been determined. Laboratory experiments regarding this point have, on each successive effort of the observer, demonstrated a longer life than the former. It is now accepted that the organism would exist in a virulent state on articles for more than two months. How much longer it will exist under conditions which are not investigated, must be determined by further research. Now, I am inclined to the opinion that the length of time now accepted for quarantine purposes is entirely too short. The fact that some of us have had cultures alive on the original medium for twelve months, and they are in as virulent a state as when planted, convinces me that the organism has not the ephemeral existence that was attributed to it by first observers.

There are certain prophylactic and curative methods which have been advocated and used on the treatment of plague. These are the Haffkine prophylactic and the Yersin anti-pest serum. Haffkine recommends as a preventive against plague a few cubic centimeters of a dead bouillon culture of the pest bacillus. This method has been employed extensively in India, and with great success. The statistics of this treatment show that it has been the means of staying the ravages of plague wherever practised. It appears to be the only practical way of dealing with plague in such countries as India. It has not been determined just how long the preventive inoculation will protect the individual. Haffkine believes that the inoculation will, after completion, that is to say, when the full number of inoculations are made, protect an individual for at least a year. Others, however, claim that its protective effect is not longer than a few weeks. Laboratory experiments demonstrate that two injections of the prophylactic protect a guinea-pig and monkey for at least six weeks. It would not be fair to accept the laboratory decision as final, because of the dissimilar conditions under which the injection was administered. Lustig has recently modified the Haffkine prophylactic by isolating a nucleo-proteid from the pest bacillus grown upon solid media. The claim for this substance is that the protective effects are much stronger, and there is less local reaction and constitutional disturbances following the injection. So far, little use has been made of this substance, and the number of injections demonstrated is too small to be compared with those of Haffkine. Calmette has also made a modification of the Haffkine method, by employing the dead bacillus, which has been freed from its toxins. This substance, like those of Haffkine and Lustig, is administered subcutaneously. The author states that the dead bacillus does not cause local reaction, nor is there any constitutional disturbance to speak of. The claims made for this treatment are based on his observation during the Oporto epidemic. The results obtained by Dr. Calmette in Oporto, both with the prophylactic injections and the curative serum, were highly successful and extremely gratifying. Shiga also prepares a vaccine in the same manner as Calmette, but this vaccine invariably causes a strong local reaction, as well as a constitutional disturbance. He recommends that at least three injections be given, one following the other, in just so soon as the constitutional disturbances disappear. I am inclined to believe, from what few observations I have been able to make on these protective substances, that the constitutional impress must be made before a state of immunity is established, and, further, that the pest organism produces a local reaction of greater or less intensity, whether we use a dead bacillus or a nucleo-proteid. I indorse the view held by Dr. Wright, of Netley, that without a reactionary effect the state of immunity will not be very great. The method of Haffkine, or any of its modifications, will never, in my opinion, become popular among the classes of people where its use would be of greatest benefit, because of the peculiar prejudice of the people, and more in particular on account of its local and constitutional effects. It would hardly be possible, even under the most favorable circumstances, to have a large portion of the ignorant class of people submit to more than one injection. This may account for the fact that the greater portion of Haffkine's work has been limited to one inoculation. If it were possible to produce prophylactic substances where one inoculation would suffice, no doubt it could be used to greater advantage. It will never be accepted by the Chinese. The disastrous failure of an attempt to immunize the Chinese population of San Francisco during the last year demonstrates this. The Haffkine prophylactic should never be administered to those who have been exposed to the plague, for in so doing you are simply increasing danger to those who might possibly be in the incubative stage. Its good effects may be summarized in the statement that it will be advantageous for protecting communities which might be liable to the infection of plague. Yersin's anti-pest serum has been used during the past four years for the treatment of plague, with good results in the hands of some, while in others it has been indifferent. As an immediate prophylactic or immunizer it has no equal. Its effects are prompt and certain. Like all other serums, it protects only for a short time, and, to prolong these good effects, it will be necessary to administer several injections, following one another at short intervals. With regard to its curative effects, I am inclined to believe that the indifferent results, which have heretofore followed its use, have been largely due to the class of cases upon which it has been used, and are not due to the inefficacy of the serum, as some would have us believe. If small doses of the serum are given to moribund cases, you can expect but little more than is to be hoped for in the treatment of cases of diphtheria of like character and condition. No one can deny that the cases of plague treated by the Yersin serum, both in Oporto and Glasgow epidemics, were followed by brilliant results; but it must be remembered that the serum was administered in heroic doses, and, in many cases, intravenously, and, moreover, to those of the Caucasian race—not to Hindoos, Mongolians, or Africans. The good results following the use of the serum in these cases can be, therefore, attributed to the early administration and to heroic doses. Lustig has reported 378 cases treated with the serum which he has made in Bombay, in which the mortality for all cases was 34 per cent, as against the normal mortality of 80 per cent. These good results, it may be said, may be due to the increased strength of the curative substances of the serum, and it may also explain why the Yersin and Lustig serums are so advantageous. Calmette remarked, in 1897, that it required at least four years to produce a curative serum. Lustig and Yersin have been engaged for over this time in producing sera, which are now yielding such good results. The immunizing effects of both the Haffkine prophylactic and the Yersin serum can be prolonged, if the serum is administered first, to be followed soon after by two if not three inoculations of the Haffkine prophylactic. This method of procedure should always be used in a place where plague prevails, as it makes it absolutely certain that no untoward results will follow. The immunity begun by the serum will be continued by the prophylactic substance for a much longer period than can be obtained under ordinary conditions.

We now come to consider the most important phase of plague, and that is, pre-epidemic state. We have been led to believe, from literature on this subject, that plague behaves much after the manner of cholera, that its prodromal period is short, and that it explodes into a full-fledged epidemic immediately, without introduction and without warning. The history of this disease in its pre-epidemic state is yet to be written. A few facts, however, have been added to our knowledge since 1894, which goes to demonstrate that very little, if anything, was known prior to 1894 considering this state. In plague, like so may other epidemic diseases, the first cases are not recognized. The insidiousness, the slowness of its progress, the varied semblances to other diseases, really make it one of the most difficult to recognize of the epidemic diseases. It is now known that it was present in Hongkong at least eleven months before it was recognized as plague. Cases of pernicious malarial fever were reported to have occurred among the white troops, which were accompanied by glandular swellings. In view of the recent experience in Hongkong, it is now quite certain that these cases were some of the first cases of plague, and were not all pernicious malarial fever. It existed in Bombay for fourteen months before its presence was taken cognizance of; in fact, until it became epidemic. The same history follows its course in Sidney. An occasional case occurred here and there, exciting little suspicion as to the true nature of the malady. It is now evident that it was in Honolulu many months before its presence became known. The same may be said of its presence in Calcutta. Although recognized fully a year and a half ago, it had then existed for at least a year before attracting attention or exciting alarm.

The question now to be answered is, How long has the disease been present in San Francisco? The first published and proven case dates from March 6, 1900; but from all reports and facts which I have been able to obtain, the first case occurred as early as November, 1898. I have now in my possession clinical notes furnished me by two reputable physicians of San Francisco, who had attended each a case during November, 1898. These notes, when compared with the clinical notes of later cases, are identical, and can be no other, in the light of our present experience, than those of bubonic plague. Unfortunately the bacteriological examination undertaken in one of these cases was imperfect and faulty, and in the other no bacteriological examination was made. The Chinese were free to say that many of the deaths that occurred contemporary with the two referred to, occurring in November, 1898, were what they termed "black fever," their name for plague. The same statements were made as early as the first part of March, last year, when the health authorities were informed by the Chinese that black fever had again made its appearance in Chinatown. Whether the disease existed earlier than 1898, it is impossible to state. The supervising surgeon-general of the marine hospital states, in a confidential circular letter addressed to the several health officers of the cities on the Pacific Coast, that, "in all probability, the disease had existed on the Pacific Coast since 1896." As before referred to, I wish to emphasize the almost insurmountable difficulties attending the diagnosis of plague among the Chinese, but I do not wish to be the one to cast the least reflection upon the health officers in any of the cities of the Pacific Coast. To those who have been thrown in contact with the Chinese, and are acquainted with their peculiar manners of living, their modes of thought, their antipathy to Western civilization, and their dislike to everything which is considered by us as proper, goes only to emphasize the difficulties which beset the path of the health officer in carrying out even the simplest of health regulations among these people. So hopeless has been the task that the health officers have been, in many instances, practically passive in the enforcement of the health regulations, and have been content to do whatever the Chinese will permit to be done. The Hindoos are reported to be still more obstinate than the Chinese. If so, the British officials, who have been laboring so long and faithfully, and have been so persistent in their attempts to eradicate the plague, have our deepest sympathy. There is yet another difficulty, aside from the opposition of the Chinese, which must be considered in the management of epidemic diseases in cities on the Pacific Coast. Its phase is not at all to the credit of American civilization, and that is to say that, so long as the white population is not materially affected, and thereby the commercial interests conserved, no attention need be paid to the plague among the Chinese, until it becomes epidemic among the whites. Your chief executive has been reported as saying, "It matters not how many Chinese are killed by Chinese, so long as the Chinese do not kill whites." Announcement of the presence of plague in any community has always been resented by the commercial interests, and not a few of our profession. The "British Medical Journal" says: "It is needless to state that there has been the usual local squabble as to diagnosis, and the medical men who have detected the disease, both clinically and bacteriologically, have been subjected to a great amount of abuse, which seems to be part and parcel of every outbreak, and are looked upon as public defamers of the city in which they live. Plague is regarded by every citizen as a possibility elsewhere, but not in his own particular city. In Bombay, in Calcutta, in Alexandria, in Oporto, the same note of resentment has been struck; and in San Francisco the public press has declaimed against their healthful city being so traduced. Let San Francisco be as healthful as its inhabitants declare, there is no gainsaying the part that Chinatown is a blot on the sanitation of the city." While we are pained and surprised that certain persons masking under the cloak of our profession should use their alleged scientific knowledge in other ways than honorable—for the purpose of currying favor with the politicians, for the loaves and fishes—we are not so much surprised after a more intimate knowledge of the character of these worthies. It is to be expected that there should be honest differences of opinion as to a diagnosis, a difference due to the want of knowledge; but after the full knowledge is given; after there can be no question as to the facts; after all the demands which science exacts have been fulfilled; to have those who pose as physicians lend themselves as willing tools to favor the ends of scheming, unscrupulous politicians, and particularly to aid that "noble," self-sacrificing individual, "the people's friend, and the low schemer's dreadful foe," is almost beyond comprehension. History repeats itself. "There has been more than one Judas. It is to be expected that the so-called business interests would naturally resent any interference in their vested rights to make money, and we can fully appreciate their attitude regarding plague, as it is not at all a new one. It has existed from time immemorial. One of the best instances of this attitude is summed up in J. F. Payne's book on Thomas Sydenham, in which there occurs the following: "So, in 1664, when the news came of a destructive pestilence in Holland, there was some feeling of alarm. The government proposed stringent rules of quarantine and exclusion, which the citizens and commercial classes, in the interests of trade, steadily opposed, so that nothing decisive was done." "In the meantime indications of the coming storm became more numerous. In the autumn of 1664 a serious outbreak of plague occurred on the eastern coast of Yarmouth, little heeded at the time, but since brought to light, of great significance." "Up to Christmas, 1664, there were many cases of a mild form of plague, found to be the forerunner of a severe epidemic. But the matter was kept quiet, and, as the deaths were few, little evidence was furnished by the bills of mortality." "However, the cold of winter, as generally happens in northern climates, checked the spread of the epidemic, and it remained dormant till the spring. In July the epidemic broke out in explosive violence, and increased up to the fatal month of September, after which it declined till the end of the year." In case a quarantine or health officer has the misfortune to apprehend or discover a case of plague or cholera, and, obeying the law of the land, or the higher law, duty, makes known his discovery, he must be prepared to be subjected to every species of abuse known to man. He must be prepared to be made a target by a subsidized press, to submit to all the lowest forms of persecution, simply because he has had no more sense than to do his duty and tell the truth. He, of course, is the defamer of the almighty dollar and traducer of all political schemes and business interests. For what do these interests care for life, health, and happiness of the people so long as the usual percentages are gathered into their spacious maws? Furthermore, it must be known that the machine politics of the state must not be disturbed. It must be kept intact. The public is to be informed by this machine that there is a traitor in the camp, bent with hellish designs on ruining the state. Plague has not and can not exist in such a healthful place as San Francisco, Oporto, Calcutta, or even Alexandria. Why those glowing commercial vistas of the Golden Gate would be sufficient in themselves to make even the thought of plague disappear, and forever vanish. Even if it were admitted that there may be something like plague among the Chinese, it must be kept quiet, even if the whole machinery of the government, both state and national, be invoked to this end. The quarantine and health officers must be suppressed; if not suppressed, they must be removed. Apropros of the subject of the suppression of facts, which have been recently brought to your notice, I quote from an address of Dr. Wyman, delivered in 1899, which has a direct bearing on this subject: "Communities themselves have encouraged the growth and are wholly to blame for the pernicious and suicidal spirit of concealment of pestilential infection. They have pandered to the vicious passion of a trade element as merciless as it is sordid and depraved, and are ever ready to raise a hue and cry against a physician who makes properly known a case which his professional knowledge leads him to know or suspect to be a case of cholera or yellow fever. Smallpox speaks for itself. The community in this matter, therefore, becomes not only a partaker in, but the instigator of, this mighty guilt. The saloon-keepers, innkeepers, and petty trades-people have fostered many a sweeping epidemic. Feeble-spirited and superserviceable health authorities, and even bureaus of government, timorously submitting to the dictum of this unrighteous mammon, have suppressed and do now suppress the truth, have falsified reports, and have consigned states and nations to the ravages of unresisted pestilence, when thousands of lives might have been saved by timely flight, and distant communities forewarned, might have protected themselves. The subject of prompt announcement is so woven into the affairs of practical municipal and maritime sanitation as to necessitate its fullest recognition as an elementary and indispensable part. It is inconsistent with every known law of God, of every principle of sound policy, and of well doing among men that an individual or a city or a state can successfully protect itself behind the flimsy barrier of a lie, particularly in dealing with the phenomena of nature. If a case of cholera occurs in a city, and be hidden under the disguise of a simple intestinal derangement, to avoid public clamor and injuries to the commerce and revenues of the state, the last hope of destroying the contagion is wiped away, and thousands of lives and the general ruin of industry must pay the penalty of a sordid, short-sighted, wretched policy. So of smallpox and so of yellow fever. The deadliest enemy of a state is the man guilty of intentional concealment."

We are cognizant of the fact that the way to control epidemic diseases is not by suppressing the truth concerning it, but the disease itself. If one-half the effort would have been directed toward the eradication of this disease from Chinatown, San Francisco, as has been directed toward suppressing the truth concerning it, and the efforts of the citizens, supplemented by their contributions, as was promised early last year, had been devoted to honorable practises, instead of the contrary, we are confident that the disease would now exist in San Francisco as a memory. In the earlier part of last year it became my duty, as an officer of the Marine Hospital Service, to cooperate and assist the San Francisco Board of Health in their efforts to eradicate this disease from the city. At that time it was suggested to the Board of Health that the lines upon which the campaign against plague infection should be carried on should be on the following order: That an inspecting corps of a few good medical men be appointed for duty in the infected district. That it would be the duty of these inspectors to investigate all cases of illness that they find or are brought to their attention. If, on investigation, these present suspicious symptoms, immediate steps to be taken to apprehend, as far as possible, all those who have been in direct contact with the case. During this time to institute measures for the correct diagnosis, and, if found to be plague, those in direct contact to be removed to a place of detention, or kept under observation for a sufficient length of time to insure their freedom from infection. To offer as a protection Haffkine prophylactic to those who might become exposed to plague, and Yersin serum to those actually exposed. The sick to be removed to a place where they can be properly and humanely treated, preferably a place in the Chinese quarter. A disinfecting corps, which has been properly trained in the performance of its duties, and under the supervision of a competent medical man, to assume immediate charge of the infected premises, and disinfect them in accordance with the accepted rules for such disinfection. This would appear all that would be necessary to control plague in a civilized community. It has proven highly successful in Glasgow and Sidney, but whether this would be sufficient to compass the question of plague among the Chinese, living here under the conditions they do, is more than problematical. I have been at the point of stating that plague will exist in Chinatown, San Francisco, until that district now occupied by them has been depopulated and destroyed. I believe that if the drastic measures which followed the course of plague in Honolulu had not been enforced, in the way in which they were, plague would now be among the Chinese there to-day. The fortunate circumstances which led to the destruction were well timed, and were consummated so quickly that it was done before any one could interfere. Whether the citizens of San Francisco, as well as those of California, can be brought to the stern realization of the gravity of the situation, and be compelled to do something to eradicate this pest hole from your city before it still further menaces the whole country, is a debatable question. Judging from the past, and the peculiar conditions existing at the present, probably no steps of a drastic nature, or as far-reaching in their consequences, perfect in result, will be undertaken until a sufficient number of cases of plague have occurred to cause consternation, fright, and panic. When this occurs, and it may be soon, for no one knows the vagaries of plague, perhaps San Francisco will be awakened from her dream, and will cast off her lethargy, which is now forced upon her by political and commercial interests, and will then make the Chinaman set his house in order, keep it clean, or go. The results which were obtained in Honolulu by its Board of Health are certainly an example to be commended to that of San Francisco. It must be said, however, that, although we realize that measures of a drastic nature are required to meet certain situations, they undertake this with reluctance, and seek some easier way, perhaps, in overcoming the difficulties. The measures undertaken by the Honolulu Board of Health were not, in the first place, of such drastic nature and far-reaching in consequences as their later measures. These measures, however, were not considered by them as final, but simply meeting conditions as they arose. When ordinary measures did not seem to accomplish the desired end, still more drastic measures were immediately instituted. These failing, the most drastic were then enforced. The reports concerning the progress of the plague in Honolulu are aptly set forth in a series of letters received from Surgeon Carmichael, then on duty at Honolulu. Under date of December 22, he says: "No new cases of what was considered plague have been reported here since the 12th inst., and the quarantine against the infected district and outgoing island shipment was raised December 19, and the chances are that the scare is over. Chinatown here has received a thorough cleaning, and steps are now in progress to place it in a good sanitary condition. The Hawaiian Board of Health is to be congratulated on their thorough and careful results." Under date of Jan. 15, 1900, he still further reports: "The situation here presents no further improvement. Since my letter to you of the 8th inst., five new cases of plague and seven deaths have been recorded. Twenty-three deaths from plague have been recorded from Dec. 12, 1899, to this date. The work of depopulating Chinatown and burning infected houses is still being carried on by the Hawaiian Board of Health." In a second report, he states: "The inhabitants of Chinatown have been removed to a detention camp near the town, Chinatown being destroyed by fire. A pest hospital and morgue have also been provided. The situation here is well under hand, and may give no further trouble. The situation here looked promising up to today, as there have been no cases of plague reported for over twelve days." The above reports may be aptly termed as three chapters of the measures for the suppression of plague in Honolulu. Those same measures, I am almost convinced, will have to be introduced in San Francisco before the plague infection is entirely wiped out.

Now as to the number of cases of plague occurring in San Francisco to date, already there have been discovered thirty-two cases during the last thirteen months. It is the opinion of all those who have made a careful examination into the facts that these few cases do not represent more than one-half of the number of actual cases occurring in the Chinese quarter of San Francisco. Early last summer I became convinced of this fact, that deaths from plague were being returned as due to other causes, or that they were unrecognized. I said in a report: "The diagnosis of the majority of cases occurring among the Chinese population is based upon the evidence furnished by the relatives and friends, and not what is revealed by post mortem examinations. This will only emphasize the correctness of the conclusion which I propose to draw a little further on in this report. A post mortem examination is a rarity, only made when there is a strong suspicion that the case is one of the bubonic plague. By referring again to the inclosed list of deaths, particular attention is invited to the causes of death. It will be seen that there have occurred 28 cases of interstitial nephritis, acute and chronic; 2 cases of parenchymatous nephritis; 6 of endocarditis; 2 of cerebral apoplexy; 4 of lobar pneumonia; 1 of acute peritonitis; 9 of bubonic plague. Attention is called to the cases of interstitial nephritis and endocarditis. Twelve cases of interstitial nephritis and 6 cases of endocarditis have occurred during the month of November (all fatal). The diagnosis of all these cases has been made post mortem, and not based on autopsy findings. While I do not wish to unduly criticize a diagnosis made under these circumstances, it seems to me that it would be next to impossible to arrive at the exact cause of death by an examination as is now conducted.

In the matter of cases of plague occurring at 802 Dupont Street, in November 1 and 2 last, I happened to be present at the partial post mortem examination, conducted by Drs. Kellogg and Wilson. While there, Dr. Wilson mentioned to me that only a few weeks before he had taken a body out of this same apartment, wherein these two cases of plague occurred, which, from the history he obtained at that time, he thought had died of lobar pneumonia. In looking over the records, I find that on September 10 a Chinese school-teacher died in these premises, the cause of death being certified by Dr. Wilson as lobar pneumonia. On October 25 another death occurred in this same house of a Chinese woman, aged 23 years, which the Doctor certified to as acute interstitial nephritis. Following these two cases were those of bubonic plague, occurring on November 1 and 2. Dr. Wilson admitted to me that the case of the Chinaman who died of supposed lobar pneumonia, was, in all probability, one of bubonic plague, and he did not think of such a possibility at the time he conducted his investigation. It is highly probable that both these cases were bubonic plague. The same supposition applies to many other cases occurring during this period, and particularly to those of November, wherein the number of cases of interstitial nephritis and endocarditis are unusually large, and are out of proportion to deaths from other causes. There is an intermediary which has not yet been mentioned, and which must not be disregarded, and that is, the recovered cases. All cases of plague which have been discovered up to date have been fatal. No mild cases have been discovered. It would be most unusual to suppose that the number of cases reported to the health officers are all that have occurred in San Francisco, because no epidemic of plague so far has been attended with a mortality of 100 per cent. We do know that there has been a number of cases of plague which have been returned to the health office diagnosed as other diseases. If fatal cases of plague have been returned to the health officer as typhoid fever, phlegmonous erysipelas, typhoid pneumonia, and diphtheria, it is only fair to assume that mild cases of plague presenting milder symptoms of the above-mentioned disease would be returned to the health office under these names, and be treated as such.

I am charitably enough inclined to believe that the mild cases of plague have not been recognized as plague, but have been treated as other diseases by the practitioner, and with no intent to mislead or deceive. These recovered cases of which there must be a few, are no doubt one of the media through which the infection is disseminated and kept alive. We must not be unmindful of the infected premises, the pawn-shops, the opium den, the gambling resort, and other agencies for spreading the disease. It appears when looking over all the histories of cases, the behavior of the disease seems to point to central foci of infection, in all probability the gambling dens or similar resorts—of which or where no white man knows, or perhaps will ever know.

The mortuary records as now sent to the health office, do not show very great increase in the number of deaths over the same period last year. Notwithstanding this fact, it is believed by many physicians, including those of the members of the Board of Health, that the number of deaths returned were not all the deaths occurring in the Chinese quarter.

The situation regarding this particular phase is aptly summed up in a paragraph occurring in the "British Medical Journal" of October 27, 1900, page 1253. "There can be no doubt that Chinatown, San Francisco, has been infected since the early part of this year at least, although the number of cases known to have occurred is small. The Chinese community in San Francisco is large and seems to form a kind of imperium in imperio, if Mr. Bryan will excuse the expression. How many Chinamen have died of plague; how many corpses of such persons are now waiting shipment to China for burial, no white man knows, or ever will know."

The question has been asked by a member of the medical profession, "Why the plague does not appear to spread with more rapidity than it does, or sooner affect a people whose habits are anything but cleanly, and whose surroundings are anything but sanitary." I have reported: "There is a feature of the Chinese life which no doubt tends to prevent the infection from spreading more rapidly than it does, and this is the way in which the individual Chinaman lives. Every Chinaman, if he can afford it, rents a small room or closet large enough to contain him and his few belongings. Uusally the room is no more than four feet wide by six feet long and six feet high. Here he sleeps and oftentimes becomes sick. The Chinese landlord, such as exist here, rents a building, divides it up into small rooms, which he rents to the Chinaman for no small sum. A room, say sixteen feet square, will often contain as many of these apartments. This system I believe has been in itself a safeguard against the rapid dissemination of plague, because if a case occurs in one of these apartments, it is shut off for a time from the rest of the occupants, and the exposure to infection, under the circumstances, would be far less than if all the persons occupying these quarters were huddled together in one room. Another feature for preventing the spread of this disease is the Chinese fatalism and fear. When a Chinaman is quite sick, acquaintances who appear at first solicitious about his welfare become fewer and less frequent. Should the inmates of the house suspicion that the person is ill with what they term "black fever," there is a general exodus, no one standing on the order of his going. In conversation with several Chinese, I am told that this is the method of procedure in China where the disease is epidemic. Their actions, therefore, must not be altogether construed as a fear of the quarantine restrictions of the Board of Health. This exodus has occurred from a number of houses where a disease, occurring there, was suspected as being plague, and long before the Board of Health was apprised of the presence of those sick or the nature of the illness. It has several times occurred that when the health officer came to investigate the cause of death, the inmates of the apartments had decamped, bag and baggage; nothing remaining but the corpse and the Chinese undertaker.

There is another feature yet to be considered, which is all important in the dissemination of plague, and this is, the presence of the rodent. The careful observations made upon this section of San Francisco, particularly with regard to the sewers, show that rats are very few indeed, as compared to other parts of the city. It is held by others than myself that the absence of rats in Chinatown has been the greatest safeguard to San Francisco, in preventing the plague. Just so soon as the rats, which now infest the docks and water-fronts of San Francisco, make an exodus, which ofttimes does occur among these rodents, into the infected district of San Francisco, where ideal conditions exist for the dissemination of plague, just so soon will the disease be set up. The sanitary condition of Chinatown is no better than it usually is at this time of the year. The sewers and alleys contain their accustomed amount of filth and refuse. The rains and fogs have added not a little to the mud and filth which now fill the interstices of the miserably-paved streets. The sewers are in the same condition as last year. The same system of intercommunication exists between them and the houses, and are doubtless used as subways from one house to another. Cellar dwellers still inhabit their caverns, and so far as any one knows, they are burrowing, excavating, and maintaining their usual subterranean communication, rendering it not only easy to pass and re-pass from one portion of the block to another, but forming at the same time an easier way for the rats to gain access to the houses than if they were compelled to burrow. The obstacles which were in the way of dealing with the plague last spring have, in my opinion, in nowise diminished. In fact, I think I am warranted in saying that they have increased. The various injunctions which have been entertained by both State and Federal Courts, the contempt proceedings against the Quarantine Officer of last June, the aiding and abetting of a certain clique of lawyers, the political capital which could be made out of the situation, have all conspired to convince the Chinese Six Companies that they in nowise consider the Chinamen amenable to observe or comply with the health laws of the city, state, or United States. The attitude assumed by this powerful corporation forms a good excuse for the individual Chinaman to follow suit and set at naught and defiance any or all rules and regulations which are considered necessary for the sanitary protection of the citizens of this state and country.

My statements made with regard to the presence of plague in San Francisco have been fully confirmed by the report of the special commission appointed by the Treasury Department to investigate and report upon this subject. This commission, as most of you know, was composed of Drs. Simon Flexner, F. G. Novy, and Lewyllis F. Barker. The report of the findings of this commission are published for the first time in to-day's issue of the "Occidental Medical Times," whose editor I am under obligations to for furnishing me with proof sheets in advance, a part of which is pertinent to the foregoing remarks.

"The study of cases during life and the inspection of bodies after death proves that it is often difficult and, under certain circumstances, impossible to make a diagnosis of plague, even post mortem, without bacteriological examiniation. In outspoken bubonic cases, there will be little, if any, difficulty in diagnosis, either intra vitam or post mortem, provided the observer has had sufficient experience with the disease, but in the absence of primary buboes, the unskilled observer will miss practically every case, and even the practitioner who has had much experience with the plague may be deceived. Your commissioners feel sure, from experience with Plague in Hongkong, India, and San Francisco, that once it is established that plague exists among the Asiatics of a town, every Asiatic who has a fever should be suspected as a case of infection, and every dead body be treated as a plague cadaver until bacteriological examination of the glands, lungs, and spleen (including animal inoculation) has proved the absence from the body of the bacillus pestis. Only by such caution will it be possible to avoid missing actual plague cases."

After the commissioners had forwarded their report on or about February 27 last, and when the Governor and his sycophantic editorial and political business staff had failed in preventing the coming of this commission, its organization, and preventing its investigations, it was then deemed a necessary course to prevent the publication of the commissioners' findings, or anything else relating to plague in California. It was a bitter and relentless campaign, and headed by the chief executive of a state, who, in carrying out what is believed to be a dictated policy, steeped in bribery, corruption, and threats, saw fit to devote more than one-half of his annual message to what was termed "the bubonic plague scare." In this state paper to the Legislature, there was reiteration of previous statements which were false, coupled with the abuse of those who had a sworn duty to perform under the law; in which there was implied accusations against sanitary authorities, both state and national; of crimes equaled only by the Borgias, and eventually to be followed up by the practises in this very hall in which the political whip was lashed in frenzy over the heads of those elected by the people to enact its laws, wherein all that is sacred and honorable to manhood was to be subordinated to carry out the policy of stultification. After failure had followed this policy, the newspaper editors of San Francisco and railroad and business interests were summoned to Sacramento to enter a secret conference to devise means to meet a situation so full of threatened ruin and impending peril to the state of California. It is now known to you that five of these parties became the worthy representatives, and were deputed to go to Washington immediately, and use all means in their power to prevent the publication of the Commission's report. We also know that these worthy and duly-qualified representatives of this great state were newspaper editors, an ironmonger, and a railroad attorney. It is further known that on their arrival at Washington, and when in conference with the authorities there, they admitted the presence of bubonic plague in San Francisco, notwithstanding all the statements which had been made to the contrary. It is further known that they submitted a plan which in their opinion was ample and sufficient to meet the demands of the situation. Hardly had their signatures been penned to this agreement when an Associated Press item was immediately sent out by them from Washington which denied the existence of bubonic plague in California. How much confidence do such acts inspire? The plan agreed upon for the eradication of plague from our midst is what is known as the "Calcutta Plan," and is set forth at length in the "London Lancet" of December 1, 1900:—

"Of the measures employed, of these, the principal, and in fact, practically the only one, generally used in Calcutta, has been disinfection. The difficulty in finding living cases of plague is drawn particular attention to, as very little help has been received from outside the plague department. The wholesale or 'extra-disinfections' are referred to with great confidence. Up to September 8, some 42,314 rooms have been subject to this 'extra-disinfection.' Since that date, I am informed as many more have been treated, and at the present time, about 10,000 rooms are being disinfected every week. How far disinfection is efficacious in preventing the spread of the plague is a question, therefore, to which the ensuing season will be likely to furnish an answer. The resolution implies that results so far is a decided if not conclusive preponderance of evidence that disinfection, when carried out on as large a scale as possible, is a useful and efficacious preventive agency." The answer to the above has been furnished and is to be found in the Public Health Reports of March 29, 1901, in which report, it is stated that from November 18 to February 23 of this year, 788 cases and 769 deaths have occurred from plague in Calcutta. Further comment would appear unnecessary.

The methods which have been permitted to be carried out in San Francisco are not those which are considered ample for the occasion. When the health officer is hampered in his dealings with the disease in any way, and is prevented from meeting situations as they arise, his efforts in our opinion will prove unsuccessful. Already we are beginning to see the evidence of insincerity on the part of those who have proposed this plan, as well as the studied indifference, inaction, and passive opposition of the Chinese. This policy has already begun to bear its fruit; first, in the Chinese denying that plague had ever been found in Chinatown; second, the positive denial of the state officials of this fact, claiming that their efforts at the present time were simply those of cleaning up Chinatown, because the public desired it, and not on account of the plague. It is remarkable that a population consisting of 18,000 Chinese, which has furnished from 20 to 30 cases of acute illness a day for observation, to the Commission, should, on an examination and inspection, under the supervision of Surgeon White, conducted on the same lines, fall off so that in 11 days not a case of acute illness has been found! During this time there have been no deaths—only a few chronic cases—cases ill with tuberculosis, rheumatism and those incident to old age encountered. It may be noteworthy to remark in this connection that this is a duplication of the experience of the City Board when it attempted to make an inspection, and to better the sanitary conditions of Chinatown during last spring. Where are the sick? What disposition is made of the dead? It is believed by myself that the former are now being secreted, and its dead are in some way disposed of in the many subterranean passages of Chinatown. Can it be that this is part of a deep-laid plot to make it appear that the absolute facts heretofore recorded have no foundation? Is this a further evidence of the villiany of certain persons high in position to bolster up a lie? Viewing the situation in the light of my experience gained during the past year, I am inclined to believe that both queries are justifiable.

The Chinese race, and those of you who have had experience with it know, for craftiness, deceit, and for "pure cussedness," they excel all other nations combined. Their manners, customs, and method of living can not be understood even to the smallest degree, unless you have been brought into contact with this race. This knowledge is sooner acquired by the health officer and quarantine officials there than in any other avocation. They possess all the qualifications for carrying out the policy of deceit, lying and suppression of truth; and would be good adjuncts to what appears a settled plan of suppression of the truth. In other words, you can not expect to deal with the Hindoo or Mongolian as we do with those of our own race. We never can expect to accomplish in our dealings with this race what we intend to do. As said by Kipling:—

"O, East is East and West is West!
  And never the twain shall meet
'Till earth and sky stand present
  At God's great judgment seat."

The methods indicated for dealing with the conditions present in Chinatown demand no half-way measures, for no preconceived notion or prearranged plan will suffice. Conditions must be met as they arise, and the man who is in charge of this work must not be hampered in any way whatsoever. If the attempt now being made by Surgeon White, in conjunction with the city and state authorities contemplate anything else than the afore-mentioned plan, it will fail to accomplish the object so much desired by all.

The medical profession of the state of California must give its unqualified support to Surgeon White, for, without this, failure is the inevitable result. It is a subject pertaining to medicine, and must necessarily be settled by medical men, and in a way their superior wisdom and experience teaches them to be correct. The presence of plague in any place in the United States, Californa included, is more than of local significance. While it may be considered one of unusual distinction by the politico-health officers of this state to have plague in their midst, I say that this feeling is not held in common by other communities. Unfortunately for our health and prosperity, the sanitary conditions of some of our cities in the United States, which, taken together with the geographical locations and climatic conditions, offer perhaps more fertile soil for the propagation of plague than does Chinatown of San Francisco. Should plague once find lodgment in the southern states, where there is a large negro population, there will be a duplication of what Cape Town is now experiencing. You may believe if you wish that, inasmuch as there has been no outbreak in San Francisco of great proportions, nothing further will occur, and that the disease will gradually die out. I still maintain that so long as conditions exist in the Chinese quarter as they now exist, just so long will these be food for plague, and it will continue where it is now present, and will be further disseminated. If common sense had prevailed last spring, instead of a senseless denial and opposition, if the help so freely offered at first by the commercial bodies was in good faith instead of a financial investment for perverting the truth, and if the citizens in San Francisco and the state had been actuated by the principles of good citizenship, and the officials actuated by a desire to discharge the duty of their office, as implied by their most sacred oath, I am confident that the disease would not only have disappeared from San Francisco, but also it would not have been distributed to other parts of the state. If the quarantine measures which emanated from Washington, those which I was ordered as an officer of the Marine Hospital Service to enforce, had been met with co-operation, and had been accepted in the same spirit as prompted them, I am certain that Sacramento, Stockton, Santa Barbara, and perhaps many more places, would not now be furnishing evidences of being infected with plague. To those of you whose duty it will be to attempt to watch over the health of your city, and prevent further spread of plague that may come to you—which God forbid it ever will—you must expect opposition and resistance from all the most powerful interests, political and commercial, to be directed against you. When the report of the commission was about to be rendered, a report which confirms in every particular the findings of the San Francisco Board of Health, and those of your humble servant, every force was put into operation to keep the truth from being known, for fear that some dire disaster would overtake the cherished schemes in increasing their material prosperity. No word has so far come from these self-appointed guardians through their subsidized press, or by their public utterances, or private telegrams that has the least coloring of an interest for the protection of the health and lives of the people of the state, but the whole burden of their plaint has been trade, trade, trade, and, "O, my ducats!"

Look for once at the names and vocations of the "illustrissimi viri," "the immortal five," designated to represent the health interests of this great state at Washington; newspaper editors, an ironmonger, and a railroad lawyer! To these and to these alone has been delegated the task of conserving the health interest of a great city. We did imagine, for the sake of appearances, that one of the members, at least, of this aggregation of talent would include a member of your State Board of Health, even as now constituted, but, for some good (?) reason, this has been omitted. This we know, however; that it has been determined by these, that the services of a physician are no longer needed to administer to the ills that flesh is heir to, for our noble calling has been rendered useless by the new regime of politico-medico electicism. There is no longer need of our gracing this mundane sphere with our presence, for the commercial interests and the lawyer have taken unto themselves our estate. Should one of us, belonging to an obsolete past, who has long ago outlived the number of years alloted to man, and has become useless, still persist in living and expressing opinions which were true in his day and age, he should be disciplined and suppressed, and if not suppressed, he should be removed. The formula for his removal should be that of the immortal Senator (Dr.) Cutter, who, on a memorable occasion of January 23 last, said in this very hall: "It is fitting and proper, as we all know and recognize, that an officer having in charge the health of a community should be allowed wide latitude and great power. But when such an officer, 'drest in a little brief authority, but most ignorant of what he's most assured, like an angry ape, plays such fantastic tricks before high heavens as to make the angels weep,' it is time for the commonwealth he threatens with ruin to call a halt. Exposed by the report of the Governor, and the investigation of the Federal Court; denounced by the great commercial and industrial bodies of the metropolis of California, by the press of the state with scarcely an exception, and by the people at large, it only remains for this Legislature to set the seal of its condemnation upon this man of abandoned and malignant heart. Every senator to whom the fair name and fame of our beloved state is dear, every senator who desires the advancement of her material interests, and who would not willingly see them stricken down without warning and paralyzed by a foul and dastard blow, should vote for this resolution. The sword of Damocles should not longer be permitted to hang over the heads of our people. It should be removed, that at night they may sleep undisturbed, and by day follow their avocations without fear. Therefore I ask, and confidently expect of this senate, the unanimous passage of the resolution." I might add so that we may all enjoy bubonic plague to its full fruition.

Dr. Wallace A. Briggs then offered the following resolutions:—

"Resolved, That the Board of Health of the State of California, as the legal guardian of the public health and the official exponents of our medical civilization, should represent the highest attainments of the medical profession.

"Resolved, That it should be fair and independent, and wholly devoted to the public health, uninfluenced by other considerations whatever, whether political or commercial.

"Resolved, That the fatal and imcomprehensible lethargy of the present board, in the face of the most insidious, the most deadly, and the most unmanageable disease that ever menaced our people, deserves, as it receives, our severest condemnation. Be it further

"Resolved, That we hereby demand of the governor, and the Board of Health of the state of California, that vigilance and activity in the eradication of the bubonic plague, which medical science pronounces imperative."

Dr. James H. Parkinson, of Sacramento, presented the following resolutions:—

"Whereas, The occurrence of plague in San Francisco, and the continued recurrence of cases, present a constant menace to the health of the state and of the nation; and,

"Whereas, The measures that have been adopted in dealing with the disease, and the precautions that have been taken against its spread, are not such as to create a feeling of confidence in the public mind;

"Resolved, That the Medical Society of the State of California regards the situation as of sufficient gravity to demand the united efforts of the local, state, and national authorities for the eradication of the disease.

"Resolved, That this society earnestly deprecates the unfortunate controversies that have arisen between authorities, and hereby records its belief in the existence of the disease in the state.

"Resolved, That the society emphatically condemns the policy of suppression of information inaugurated in San Francisco and now being perpetuated in Washington, and demands that the plain provisions of the federal law in relation to the Public Health Reports be strictly complied with."

Dr. C. N. Ellinwood, San Francisco: It seems to me, Mr. President, and members of the society, that, in the present state of advancement of bacteriological science; in the present knowledge of the subject of the plague; and, considering the fact that there is such great divergence of opinion upon the present disease observed in San Francisco, I believe that it would be unwise, I believe that it would be doing an act this society would regret, to pass this resolution. I believe that insufficient attention, insufficient study, has been given to this subject to warrant its adoption. I would regret very much to see this resolution adopted at this time. I am frequently met by gentlemen who seem to take as a foregone conclusion the existence of the historic bubonic plague, the existence of that disease, which is known to be of the most epidemic and virulent character, the existence of that disease is thought to be in San Francisco. Such is not the fact. If it was generally acknowledged that it existed, would San Francisco not know it? If such a disease existed there, do you think that immigration and visitation from eastern tourists would not be prevented? Do you think the hotels of San Francisco would be so crowded? And yet this society of learned men, this State Medical Society, by resolutions proposes to announce to the world, and would publish as a fact, that their conclusion is that bubonic plague exists in San Francisco. Where is the justification for such a hysterical action? It can certainly do no good to any one. It is a method which develops no good, which aids not to arrest it, if it is there, and I ask the society to think deliberately upon this subject before passing such absurd resolutions.

Dr. D. D. Crowley, Oakland: I have been a member of the State Board of Health for the past four years, and am at the present time, although my term has expired. I will say that I have given in the past year a great deal of time to the plague in California. I have employed, and have had to assist me, good bacteriologists, and I have in my office at the present time 50 to 100 slides, that I can lay my hands on at any moment, and I will say that there has been plague and is plague in California, and that is the position I have taken from the first. The governor, Dr. L. C. Lane, and Dr. Winslow Anderson signed a certificate suggesting that there was no plague in California, and I will also say that some homeopaths signed a certificate, which was sent to the Secretary of State, claiming that there was no plague; and I will say, on top of this, the microscope says there is. I have been present at the work and investigations done by the Board of Health, and, on top of all this, I had the cultures sent to Surgeon-General Wyman, to the Johns Hopkins University of Baltimore, and to the University of Pennsylvania, and will say that the reports returned have not been accepted. I will say, however, that the attitude of the Board of Health has not been altogether criminal. This board has been opposed by certain medical men of California, who have prevented the Board of Health from doing what it should do. I have done the best I could myself at the time, and I will say that the paper signed by Drs. Lane and Anderson, and the homeopaths, and the governor have done us great harm, and you can fix it the best way you know. Dr. Ryfkogel has kept the cultures alive for months, and if any honest man desires to make an examination, he can do so.

Dr. Wallace A. Briggs, Sacramento: Thirteen months ago the investigation of plague began by the bacteriologists of San Francisco. Men of local and general reputation declared it to be plague. These were followed by men of national and international reputation, and they all declare it to be plague. Should we discuss that question here in the State Medical Society of California in the face of all this? The action may be hysterical possibly, but in the presence of so great evidence as this, I say that such action is demanded.

Dr. J. R. Laine, San Francisco: I should like to ask the necessity of adding the two clauses asking the governor to obey the law.

Dr. Laine: Whether the plague existed or not has nothing to do with the question as to its existence at the present time. Dr. Kinyoun claims that for a number of days past there has been no sickness and no deaths in Chinatown. He is an honest man, and is in a position to know. It is not wise in the face of this statement, to declare that San Francisco and the state are in great danger, and it seems unnecessary. The situation seems to be aggravated largely by the rivalry of two medical journals, and is it wise for the State Medical Society to place its destinies with the one or the other? It is absurd to take any action on this question at the present time. The papers on the plague question will be read by every one, as will also the resolution, which not only affirms that we are in great danger, but asks the governor and General Wyman to obey the law. The most we should do is to accept the papers and publish the discussions; but, so far as making resolutions may go, it is far better and more in the interests of the people to be silent, for it is said, "Those reach nearer the altitude of the gods who, knowing themselves to be right, are nevertheless silent."

Dr. Briggs, Sacramento: Do you believe that it had existence in San Francisco?

Dr. Laine: I certainly do. I feel as fully convinced of it as I do of anything I do not know anything about. Notwithstanding the fact that the municipal government of San Francisco, the authorities, and the Marine Hospital Service of the United States are in active work, under the supervision of the government officials, to eradicate it, it is still agitated by the editor of a journal. I say he is doing it for a selfish purpose. I do not say he is dishonest, but I say he is animated by a purpose that I would not be animated by.

Dr. C. R. Krone, Oakland: Over the speaker's desk in this senate chamber we see emblazoned the motto, "Senatoris est civitatis libertatem tueri," which means, "It is the senator's duty to protect the liberty of the state." With the change of two words, this sentiment becomes forcibly applicable to this occasion. It is the physician's duty to protect the health of the state. The purpose of the resolutions before us is, and should be, nothing else than the protection of the state against disease. If our health boards for any reason can not act effectively, the disease spreads, and will too late convince those who oppose us to-day. How can a man, in justice to himself and to his profession, accept a position on a board of health if he is exposed to such slander and ill treatment as the thoroughly scientific and conscientious men of the San Francisco Board of Health have received? Only such men as do not care to protect the health of the state would accept, and our state would be unprotected. We must be honest in the pursuit of our scientific work, else the public press will crush us, as it would have crushed Dr. Kinyoun, as you well know, if he had not been absolutely right. This body must express itself in support of the scientific findings.

Dr. George C. Cole, Los Angeles: There is no question in my mind but that the plague existed here, but all the authorities, municipal and state, are doing all they can to suppress the disease. I do not see why we need to emphasize this fact before the meeting at the present time. No good can come from the resolution. Everything can be done without it, and I move, as an amendment to this resolution, that this clause referring to bubonic plague be struck out.

Dr. R. F. Rooney, Auburn: I rise as a country member. Have we got the plague in our state? If so, our country towns are in danger, and our neighboring states are in danger. If it exists, as we believe it to exist from proofs shown, there is danger, and we should take precautions, and not hide our heads like the ostrich, and say that, because we can not see our peril, therefore no peril exists.

Dr. W. C. Riley, San Francisco, would like to ask if there is any second to Dr. Cole's motion?

D. W. Winterberg, San Francisco: Before passing any such resolutions as the one under discussion, we ought to know, first of all, that plague has ever existed or still exists in San Francisco. Now I, for one, can not admit the existence of said disease without convincing proof, and I challenge any one in this hall to bring forth such proof if he can. The pioneers in the field of bacteriological investigation in regard to plague, Kitasato and Yersin, found and described two different bacilli as the cause of the disease. Ogata and Yamagina controverted the claim of their countryman, Kitasato, to the discovery of the true plague bacillus, by demonstrating that his bacillus differed in various points from the one discovered by Yersin. Yamagina found the Kitasato bacillus only in the cadaver, while specimens taken from the living showed exclusively the Yersin bacillus, without the presence of other microbes, and he therefore claims that Yersin's is the true plague bacillus. Now, from all the information I have been able to gather in regard to the method of examination followed here by different investigators, I have so far failed to find a single case reported in which an examination of the blood or tissues taken from the living had been made, and in which Yersin's bacillus had been found; and quite naturally so, for, in the absence of living, susceptible cases, only cadavers resulting from any unknown disease were at the disposal of the scientist. Now then, when it is possible to find patients afflicted with this disease of a highly virulent and infectious character in the midst of that densely populated part of the city known as Chinatown, in the very heart of that focus of all kinds of infectious material, and where the most favorable conditions prevail for the propagation and multiplication of disease germs, I ask you, where shall we look for the plague? I think it is safe to claim, with these facts before us, that neither does there nor did plague ever exist in San Francisco, and we only waste out time looking for it in broad daylight with a lantern, as Diogenes did looking for an honest man. I agree with Dr. Ellinwood that the resolution ought to be defeated, there being absolutely no justification for it with the facts at our disposal.

Dr. Laine: I may be right or wrong in my views of the action of the Health Board and Dr. Kinyoun in their efforts to guard against the plague last fall. If Dr. Kinyoun was right, let us discuss that phase of the subject or be silent, and admit that there were mistakes on both sides. If we had known as much at the beginning, we would not have done as we did. In all great undertakings we do things that will be criticized. If you indorse all of Dr. Kinyoun's official actions, you must indorse his action in placing a guard at the Oregon state line, at Truckee, and at the Arizona state line. If you wish to discuss the subject of the wisdom of all that has been done, we will not shrink from the ordeal, but I hold that, in view of what is now being intelligently done to abate and remove all cause of danger, we should support all legally constituted health authorities, instead of feebly throwing insults at them by telling them to obey the law.

Dr. C. N. Ellinwood: It seems so far we have only been talking on the question of plague. The last resolution was on the adoption of the entire report. It seems that so much time has been taken up on one item that we ought to take action on the balance, and I move that we take action on the report. It should be divided, and considered by section. The amendment, I believe of Dr. Cole, is before the house.

Dr. Emmet Rixford, San Francisco: I have listened with interest to the debate on these resolutions, and it seems to me very unfortunate that the subject was brought up in the society at all. But since the matter is already public property, it is evidently incumbent on the society to take some action. The resolutions as presented have aroused vigorous opposition, and, even as modified by the Executive Committee, seem to me to exaggerate the condition to an extent which will, if they be passed and published abroad, do great harm and injustice to the state. The main thing is the acknowledgment of the presence of bubonic plague in California, and it is quite within the province of this society to put itself on record as being satisfied as to that fact. In the spirit of compromise, therefore, I offer the following as a substitute for the resolutions as reported by the Executive Committee:—

"Whereas, It has been shown by our local bacteriologists, and by the Commission sent by the United States Government, that the bubonic plague has existed in San Francisco, and probably does at the present time; therefore, be it

"Resolved, That the Medical Society of the State of California express its confidence that the San Francisco Board of Health, the State Board of Health, and the United States Commission will be able to watch the disease, and to take proper measures for its suppression."

BACTERIOLOGY, PATHOLOGY AND HISTOLOGY.

A paper by Dr. Bullard, "Actinomycosis," was read by title.

A paper by S. P. Black, of Los Angeles, "Sarcoma of the Stomach," was read by title.

A paper by P. K. Brown, of San Francisco, "Leucopenia in Acute Septicemia," was read by title.

A paper by Wm. Ophuls, of San Francisco, "Rectal Ulcer, with Secondary Infection of the Liver," was read by title.

A paper by Dr. Geo. T. Brady and Philip King Brown, on "Colloid Cancer of the Omentum," was read by Dr. Henderson, of Sacramento.

LARYNGOLOGY, RHINOLOGY AND OTOLOGY.

Dr. Kasper Pischel, of San Francisco, read a paper on "Acute Affections of the Maxillary Sinus."

Dr. H. B. Ellis, Los Angeles: I was very much interested in this paper, and must say that during the present epidemic of la grippe it has produced may cases of frontal sinus and antrum trouble. In acute conditions of the antrum, if we can secure drainage through the natural opening, or by a trocar, so that we may wash it out, other operative interference is not wise; but I think in washing out we have to use the same strength of antiseptic as we do in washing out the urethra. The weaker the solution, the better, and there is less pain. If the irrigation is carried on, and if in a few weeks it does not lessen the quantity of pus, or the discharge is scanty during the washing, and pressure symptoms continue, operative interference should be introduced. From my own personal experience I find it is best to remove the first molar tooth and drill through into the antrum, and we reach the lowest part of the antrum and get the best drainage.

Dr. H. Bert Ellis, of Los Angeles, read a paper, "Empyema of the Frontal Sinus."

Dr. K. Pischel, San Francisco: I will say a few words on Dr. Ellis' paper. In the few cases of chronic affection of the frontal sinus on which I have operated, I became convinced that syringing through a small opening would have been of no value, for the whole sinus was completely filled with granulations, and there could have been no cure without complete obliteration.

Dr. B. J. Powell, Stockton: In regard to the frontal sinus catheter Dr. Briggs spoke of, we have used it in numerous cases with success. One must practise quite a long time to become expert, and at times the result is not most satisfactory. I have at the present time several cases under treatment. One woman gets a great deal of relief from it. I do not know as to the eventual cure, but she comes many miles to receive treatment and enjoy the comfort that follows. Several other cases, after experiencing the first relief, failed to return.

Dr. Geo. H. Powers, San Francisco: One word in connection with the case of Dr. Pischel's. The question of telling the patient if he has cataract depends on circumstances. One patient asked me to tell him truthfully if he had a cataract, and I told him it was half developed. He said the other doctor told him he had opacity of the lens, not cataract.

Dr. Wm. Ellery Briggs, Sacramento: It seems to me that sinus trouble is more prevalent now than heretofore. Whether this is due to the fact that influenza is more prevalent, or whether due to the fact that methods of diagnosis are more accurate, I can not say. Many of these cases go unobserved, and the pain that the patient is likely to suffer is attributed to neuralgia. I remember, in my early experience, many cases were overlooked by myself because of lack in the methods of accurate diagnosis. Transillumination is a valuable aid, and the more I use it the more I rely on it. It is of importance in many obscure cases, although many of the relations between cause and effect are evident. Most of the cases of maxillary sinus trouble I have treated, I have treated by the removal of the molar tooth. We often find a diseased tooth, and, if it is necessary to sacrifice one, I sacrifice the least useful one. This method of treatment is not always sufficient, and one often finds cases in which the most thorough cleansing and the use of various antiseptic solutions do not cure the case, and a more radical operation is necessary. In Berlin I observed Dr. Jansen, who does more of that state society fifteen shrdlu cmmfwnnr work than anyone else in this field. He goes in through the canine fossa, opens the maxillary sinus, and even the frontal sinus, through this opening. That operation is too radical for me, and I do not adopt it. With the patients we have to deal with, we can not with justice to ourselves be so radical. My treatment of the frontal sinus has not always been satisfactory. Many cases will recover if thoroughly curetted and the nasal drainage established. Others will require a second operation and long and tedious irrigation with mild antiseptic solutions. The surgical treatment of these troubles has not reached its greatest perfection.

Dr. Philip Mills Jones, San Francisco: The papers of Drs. Ellis and Pischel were very interesting to me. The doctor stated that the affections of the sinus are on the increase. That is probably true, but I know in certain places that they were quite common before I practised medicine. Lately I have done some excavations in Santa Barbara. I have excavated 130 skeletons, and out of this number there were no less than 4 cases of maxillary trouble, and out of this 4 one frontal and one maxillary case were very grave, and probably instrumental in the death of the case. In one, particularly, all the bone tissue was necrosed. The necrosed condition progressed and perforated the skull, and, no doubt, the case died of suppurative process in the brain. The maxillary trouble was probably caused by two molars, the roots of which were all necrosed, and there was quite a considerable opening into the maxillary sinus, and a great deal of necrosed bone. I saved as much of the skull as possible. Certainly four is a considerable proportion of the cases; I was consequently very much interested in the remarks of Dr. Briggs.

Dr. H. S. McGovern, Sacramento: I would like to make a few remarks on the treatment. As stated, there is too much of a rush to operate, and in a great many cases I think we can produce a cure without instruments and without washing, except with cocain or something to shrink the membrane up. This should not be done to excess. Once we get into the sinus, it is necessary to wash it out, and this is a tedious and long-drawn-out process.

Dr. R. D. Cohn, of San Francisco, read a paper on the "Pathology and Treatment of Hypertrophy of the Pharyngeal Ring."

Dr. Wm. Ellery Briggs, Sacramento: The subject of Dr. Cohn's is a very timely one. Although we have had a great deal of discussion of adenoids in the last few years, we have not had enough to impress the general practitioner and the laity with the great importance of the trouble. I believe many of the later troubles of the ear are started in childhood by adenoid vegetations, and I am so fully convinced of this that I should advise the operation, even if there are no urgent symptoms. In regard to removing the faucial tonsil, I certainly do not feel it necessary to remove all enlarged tonsils. As for myself, I do not practise the removal of the third tonsil at the same time as the others, because the cases of fatal hemorrhage I have noticed, have been cases where all have been removed at the same time, and it seems to me if it is dangerous in some cases to the life of the patient to do both operations at once, then one should do them separately, as the operation is not sufficiently urgent to take any unnecessary risk. In regard to the anesthetic, I have used nitrous oxid; it is not quite satisfactory I admit, but I am afraid of chloroform, as many deaths that have been reported have been from the use of chloroform. This has often happened without the patient being under profound anesthesia, and as the doctor said, I believe children subject to this growth are particularly susceptible to chloroform, and for that reason, I use nitrous oxid. I have been thinking since I saw the article by Dr. Bullard, of Los Angeles, in regard to the ethyl bromid, that it might be suitable for this operation. The effect of nitrous oxid is too short, and in doing the operation as is required in many cases, we do not have time, and do not do all we wish to. Another thing I think of some importance, is the use of an antiseptic spray after the operation. Small children often have fever and a mild form of septicemia after the operation, and I believe that it can be avoided by the use of a mild antiseptic spray in the nose and throat, and I make it a practise to order it. It was only a few days ago I neglected to order the solution for the patient, and as a result the breath of the children was very offensive. The spray can do no harm and I believe that it does good.

Dr. M. W. Frederick, San Francisco: I want to take exception to Dr. Cohn's statement that he can not get out a good piece with the Gottstein curette. I think he can get out most of it, and if the patient swallows it, he will generally vomit it very soon. I am much opposed to taking out all three tonsils at one sitting. The blood lost during the removal of adenoids is all that the child can stand, and the faucial tonsils can easily be removed at some future time. In removing the faucial tonsils, I do not use an anesthetic. As to Dr. Briggs' remark regarding the use of a spray just after the operation for adenoids, I never use any. My reason is that a spray may easily cause a recurrence of the hemorrhage, and our object is to prevent that. I have never seen any fever after the operation; the patient generally feels so well that one has difficulty in keeping him in bed to prevent his catching cold. Secondary hemorrhage is usually a serious matter, as most of the patients are, in consequence of the nasal obstruction, quite anemic, and can ill afford to lose any great quantity of blood.

Dr. K. Pischel, San Francisco: In regard to the anesthetic, I have found that nitrous oxid is quite practical for the removal of the pharyngeal tonsil alone, but will not last long enough for the removal of the faucial and pharyngeal tonsils. If I want to remove the three, I use ethyl bromid, and it serves me well. I make the narcosis deep and use the electric cautery snare, because then I have not much bleeding when I am through with the faucial tonsil, the narcosis is not so deep anymore, and I remove the pharyngeal tonsil.

Dr. Cohn: In reply to this I should like to say that I am glad to hear that, corresponding with my experience, Dr. Ellis had such poor success in one-fourth of his cases of ear trouble. That is one of the most important points. In regard to the anesthetic, I did not say that chloroform or ether was preferable, but I confess I use them, and that they are more dangerous, but in so many cases we use a dangerous method until we get into trouble. In regard to the spray, I think that there are no bad results following from it, only as a general thing I find no necessity for it. The patient usually recovers with little fever, and the child gets out and about at once. In regard to removing the three tonsils, I prefer to do all at once if the patient can stand it. If the patient has not strength enough, I do it in two operations. In adenoids, I remove the greater part with the forceps, as it enables me to show the parents the corpus delicti, which is generally swallowed when the curette alone is employed.

Dr. M. W. Fredericks, of San Francisco, read a paper on "Aural Gymnastics."

R. D. Cohn, San Francisco: I wish to make a few remarks on this paper, which is a very valuable one. Dr. Frederick studied this method in Vienna, in 1893, when Urbantschitsch was beginning to give attention to it. I was there five years later, and the method had developed to such an extent that many aurists on the continent were enthusiastic over it, and Urbantschitsch was more than pleased with the success he had attained. Patients who have not a certain amount of intelligence are useless. In one with an ordinary amount of intelligence, and with a physican with perseverance, the results are sometimes surprising. I remember several cases of which he spoke. In one the theater was a torture, and, after the patient had been treated for some time, it was a recreation. The value of this method is at the asylums, where it can be systematically practised, and I predict for it a very good future.

Dr. H. Bert Ellis, Los Angeles: I have listened with a great deal of interest to this paper, and it is a timely subject, and can not have too much consideration. First, in answer to the percentage of the cases of hardness of hearing not relieved. I find that in about 25 per cent of cases there are no apparent results. There is one point I would like to call attention to, and that is in regard to the anesthetic. In a great majority of cases it should be used, and always in young people, and the anesthetic par excellence is ethyl bromid. As to chloroform, I am opposed to it. It is a well-known fact that in people troubled with hypertrophy of the pharyngeal ring chloroform is particularly dangerous. In the case of ethyl bromid we have anesthesia for five minutes. In the majority of cases the operation is accomplished in three minutes, and there is consequently not so much trouble with swallowing of blood as with other anesthetics.

OPHTHALMOLOGY.

The paper by Dr. W. S. Fowler, of Ventura, "The Ideal Correction in Errors of Refraction," was read by title.

The paper by Dr. George C. Pardee, of San Francisco, (a) "Two Cases of Retinitis Proliferans, Both Bi-lateral;" (b) "Is Astigmatism Progressive? Discussion of Cases," was read by title. [To be published.]

Dr. George H. Powers read a paper, (a) "Enophthalmos, a Case"; (b) "Bi-focal Lenses, a New Device." [Published at page 168.]

Dr. McKee read a paper, "The Treatment of Immature Cataract." [To be published.]

Dr. Geo. H. Powers, San Francisco: I relied on the optician in that point when he made them for me. They have, however, improved on it, in the way of taking more time to dry the cement. This pair I have on, I have used for many months. As to the treatment of cataracts, in the cases of incipient cataract, the general practitioner has the first opportunity to advise the patient. I have seen a few cases where there was undoubtedly incipient cataract, and after treatment, there was a transparent lens. In one case in particular, a lady who was very fond of reading at night; her eyes began to trouble her so much that she had to give it up. She was feeling very miserable. I examined her eyes, and found radiating lines in the periphey of the lens. The central part was transparent, but the rays of opacity were very distinct, and I don't think there was any trouble for an experienced person to recognize it; however, I did not tell her about it, but I told her to take care of her physical health, etc. She went to Philadelphia and saw Prof.

Thompson, who examined her eyes, and told her there was no cataract, and also told her that she never had had any sign of cataract. I am sure that the opacities were there and that they disappeared is an absolute surety. I have another case of a German lady who was fond of embroidery and knitting; she finally became in such a condition that she could not do it for more than five or six minutes. She had an opacity of the lower portion of the lens, but no radiating lines anteriorly or posteriorly. I gave her a tonic and the constant current of electricity each day for several weeks, and then occasionally for three months. At the end of that time, she read all she wanted to as well as before. I can still see the cataractous mass, but decidedly diminished. Now, whether that is due to the better hygiene, or to the electricity, it is utterly impossible to say, but I believe that she was benefited by the electricity. I don't believe that cataract can be made to disappear by electricity, but from three other cases that I have had, I think that it is justifiable to make the attempt with electricity. I believe that it will benefit the patient.

Dr. Wm. Ellery Briggs, Sacramento: The subject of Dr. McKee's paper is one of interest to the general practitioner as well as to the specialist. The trouble with the laity at large is, if they have any lenticular opacity, they will surely become blind. That, of course, is an error, as a great many patients have a great deal of opacity, and retain their usual vision for one-half a lifetime, and even with senile opacities, often under observation, one finds the change progressing for ten to fifteen years. Now, the fact is that a great manly quacks receive a great deal of credit, as many remedies are found and believed in by many people to be efficient in retarding the progress, or cause a clearing, of opaque lenses. I think very few men of experience believe it is true. I do not, and still I have had some cases under observation where it has been a question in my mind whether it is so been a question in my mind, whether it is so or not, but it never has been proved yet. Until I have had more experience, I will not believe or admit that lens opacities will be cured by treatment. Most of the cases I have seen have been treated in the East, and by remedies reported to be useful in clearing the cataract, and have at last come to the surgeon to be operated on. I have known of several of these cases, but the fact that many of these cases of immature cataract remain for a great many years without becoming mature, gives the charlatans good opportunities which they take advantage of, and a great many patients believe that they are benefited, when they would remain as well without the treatment. I have watched a number of cases from time to time, and in some of them, as far as I have been able to determine, there has been no benefit from treatment. I do not practise any maturing operation, for I think the average patient is better without it. Unless it is in a patient whose life is to be short, I think it is taking too much risk to undergo the operation. If he has useful vision, it is better than it might be made, although many operate and claim good results. I have doubted if the results are as good as we often see reported, because a few cases I know of have not been favorable, and I naturally discourage the patient in hastening the operation before the cataract is matured. I occasionally lose a patient by urging delay till the cataract is mature, but I shall continue that advice until I have seen better results from early operation than I have in the past. The only preliminary operation that seems to me justifiable is iridectomy, which the author of this paper has practised in certain cases. There is little to say in regard to Dr. Power's paper. I am favorably impressed with the doctor's bifocal lenses, and have prescribed them a few times with good results. I think they will come into general use in the place of the usual bifocal lenses.

Dr. K. Pischel, San Francisco: I think that Dr. McKee has given us a clear idea of the seriousness of the treatment of immature cataract. As long as there is one eye to attend to the duties, the patient is satisfied to wait; but if the cataract on both eyes is so far advanced that the patient hardly finds his way, and comes pleading for a speedy operation, it seems cruel to let him wait for two years for the maturing of the cataract. I think we should try to make the operation early, though there is a certain amount of risk. One of the simple ways is to make an iridectomy or to use massage. If we have a patient fifty years old, with good sight, but radii in the periphery of the lens, should we tell the patient that he has cataract? No. As soon as we use that word to him, he begins to worry. Of course, in my journal I would put down the diagnosis, incipient cataract. The bifocal lenses which Dr. Powers recommended I have used in a number of cases to advantage, but I find quite a number of people who can not stand them because they make them dizzy.

Dr. R. D. Cohn, San Francisco: I will make one remark in regard to neuralgia caused by ocular disturbances. I refer to the lack of balance of the external and internal muscles. Very often, if the axcomodaton is improved, and the weakness of the muscles overcome, the headache will disappear. In other cases where astigmatism is corrected, the neuralgia disappears. Very often they are sent to the specialist by the general practitioner for glasses, but I never promise relief. I think it is very hazardous to promise anything in regard to the disappearance of the headache in astigmatism.

Dr. G. A. Hare, Fresno: I was very much interested in Dr. McKee's paper, and particularly so from my point of view. I know that many of these cases belong to the general practitioner, and it seems to me that inasmuch as many of these cases are due to general malnutrition, it is an important question for the general practitioner to consider. When a case of beginning cataract comes under the care of the general practitioner, much improvement can be secured by the proper treatment of the general health. The progress of the cataract may be arrested and save the patient the experience of an operation, an experience which none of us are fond of, and secure sufficient vision to make the eyes useful for years. I have always believed it possible for the general practitioner to do much in arresting the progress of incipient cataract by electricity, by massage, and by building up the general health; and I confess I am not yet free from a limited belief in that possibility. I believe this for the reason that most of these cases of cataract are due to a lowered nutrition of the lens, which is brought about by lowered tone of the general health; therefore, tonic treatment to the eyes by electricity and massage, and tonic treatment to the general health has seemed to be of much value in arresting the progress of the opacity, and in some cases of securing a partial clearing-up of the lens. I want to compliment the doctor on his device for bifocal lenses, and I also want to make a criticism regarding the use of cement. In our part of the state I prescribed the bifocal lenses largely, but the method of uniting the two separate pieces of glass is not practicable in the intense heat of our valley, because the heat softens and causes discoloration of the cement. This becomes very annoying, and in a few months they are useless. Sometimes they will last for from one to one-half years, but I have yet to see a pair that stands the heat successfully. I trust the doctor will find some way whereby the small film may be attached to the large lens without the use of cement.

GYNECOLOGY.

Dr. Adelaide Brown, of San Francisco, read a paper, "The Pelvic Examination of the Parturient; a Clinical Report on Its Value."

Dr. Frank L. Adams, of Oakland, read a paper, "Four Cases of Ectopic Gestation Treated by the Vaginal Route."

Dr. G. W. Davis, of San Francisco, read a paper, "Topical Treatment in Gynecology."

Dr. W. A. Briggs read a paper, "Some Gynecological Impressions Residual from Three Decades of General Practise."

Dr. Geo. B. Somers, San Francisco: The paper that has been offered comprises gynecological experiences of the last two or three decades. The last twenty-five or thirty years represent the time that it has taken gynecology to reach its position as an independent specialty. As far as my own experience goes, it does not cover one decade, but all those who are interested in gynecology must know the problems the pioneers had to contend with. The first thing that srikes us is that attention was first directed to topical treatment of the diseases of women. This constituted the entire scope of gynecology, and nothing was done for treatment except the use of strong astringents and cauterizing agents. In this time, between 1870 and 1880, silver nitrate, caustic potash, and nitric acid were frequently used, and Emmett's attention to the bad effects due to the use of these strong agents lead him to work out many of the principles and practises of gynecology. Dr. Briggs, in his paper, called attention to the use of the silver nitrate stick, or lunar caustic, as a valuable remedy, stating at the same time that it had fallen into disuse. I think most of us feel that the disuse of these strong agents in local application is based on the results of the ill effects following their use. We know well that the whole of the uterine cavity is filled with glands, which are likely to be obstructed and destroyed by the use of strong applications. Dr. Briggs said a word or so about gynecology as a specialty, and said, I believe, that his impression was that it is an evil, perhaps a necessary evil, and based his impression on the fact that many of the conditions in gynecology found their way to the hands of the gynecologists through neglect in the treatment of parturient women. This must be considered as a fact, but a better future in this respect has been prophesied. The qualifications of physicians nowadays with their four years of study and service in the hospitals, lead to a thorough appreciation of asepsis and sepsis; and when they realize that the scrapings from the fingers, even after the hands have been well cleansed, develop many colonies of staphylococci or streptococci, they appreciate the importance of this subject. The interior of the uterus is a most favorable place for the development of septic germs, and it is a wonder to me that we do not get very much more of it. In reference to prophylaxis, I think Dr. Brown's plan of using rubber gloves is an excellent one in the examination of parturient women. No one would attempt to confine a woman without aseptic precautions, and when we realize how easily septic media are introduced into the uterus, I think the use of rubber gloves must appeal to every one. Another point was read by Dr. Briggs and Dr. Brown, in reference to the repair of the cervix and perineum after confinement. There is no question in reference to the necessity in performing the operation after a tear of the perineum; but as for the cervix, there is some room for doubt as to advisability of operation, unless the injury is of considerable extent. It is a most difficult thing to get the patient into a condition to operate after a confinement. As to the repair of the cervix, it is a serious operation in the parturient, since the parts are open to sepsis, and we add an additional element of danger by operating. There are cases where it must be repaired, and the main indication of this is hemorrhage. If hemorrhage does not take place, and if it is not badly lacerated, the parts will heal sufficiently, or we may perform the operation later. Dr. Brown's point in reference to examination at stated periods after parturition, is an excellent one. For one thing, it enables us to protect ourselves, for we save our patients from falling into the hands of the unscrupulous, who may cast the odium of laceration on the attending physician. I am glad to hear Dr. Davis call attention to the use of the pessary, and feel myself that it is an agent for the greatest good in many cases. Where indications for operations like the Alexander seem to be present, where there are no complications, the careful and judicious use of the pessary will obviate an operation. Alexander's, by the way, is an operation having many admirers, but often followed by serious results. I know of a number of cases of ectopic gestation where the vaginal route was followed; still if we have 100 successive successful cases by the vaginal route, that would not be enough evidence to exclude the abdominal route. We must take the abdominal route in some cases, more particularly where the tube has burst. Only recently I found it necessary to use the two routes. The case was a woman living in a country town, seven or eight miles from Carson City. The pelvic cavity was filled with a fluctuating tumor of ectopic gestation. Evidently the sac was full of blood. This had to be removed. The sac was opened through the vagina, in order to relieve the tension and to prevent the bursting of the sac into the abdomen. In the examination, at the time, it became perfectly evident that the placenta could not safely be delivered through the vagina in this particular case. The cavity was packed with iodoform gauze, and the patient shipped to the city, and put into proper quarters, where the abdominal route was subsequently followed. There are a number of other very interesting points to be considered, but I will not occupy any further time.

SURGERY AND SURGICAL ANATOMY.

Dr. J. Rosenstirn, of San Francisco, read a paper, "A New Method of Bone Filling."

Dr. Thos. W. Huntington, San Francisco: I have only a word to say. I witnessed one of the operations read in this report, and was very much interested in it. I will say that the case would have been amputated by most surgeons, and I confess to a feeling of doubt as to the propriety of the procedure at the time it was done; at the same time, I was very much interested in it. Upon the general proposition of bone filling I have the usual feeling that nature does not tolerate a foreign body. If a repetition of this case is made by the author and others, we have made a big advance in surgical cases. I should be glad to hear from some one else at a later period, but at this time I have only to say, the efforts are worth making, and see if we can determine the fallacy or correctness of this matter.

Dr. H. M. Sherman, San Francisco: I would like to ask one question, and that is in regard to the ultimate end of the filling, whether it is absorbed or not. I thought the doctor said it was finally absorbed.

Dr. J. Rosenstirn, San Francisco: I believe it is absorbed, as is demonstrated by the picture and by experiments on animals by Martin Stachow. I have not had a chance to amputate, and can only offer the X-ray in support of my opinion. The bone shows a perfectly normal shadow, and you see it gradually replaces the lighter shadow, according to the interval of time since the filling of the plaster of Paris. In the last case where I opened the joint, I saw the granulations grow into and around the plaster, and I believe that, in the same way that chipped bone is absorbed, the plaster of Paris is absorbed. I asked Dr. Huntington to see the case before coming here, and see the great progress, but he was unfortunately prevented from doing so. I would be glad to show the case to any one, and, although the cases are too few to be decisive for the merits of this method, I believe the method is worthy of consideration, and I should be glad to that I can not bring the patients here for demonstration. All I can ask is for the profession to try it conscientiously, and, I think, they will get the same results.

Dr. Wm. LeMoyne Wills, of Los Angeles, read a paper, "Surgery of the Lungs."

Dr. T. W. Huntington read a paper, "Fracture of the Lower End of the Humerus."

Dr. H. M. Sherman, San Francisco: I desire to discuss the paper from the standpoint of one who agrees with Dr. Huntington. There are certain points, however, which I think can be made a little more clear, or rather, put in a little different way. First, in regard to the radiograph. Its value is dependent, among other things, on the age of the patient; the younger the patient, the less may the radiograph tell you, because of the relatively large amount of cartilage unossified. In the picture Dr. Huntington showed you, of the separation of the epiphysis, there is a good shadow picture of the epiphysis itself; but this was because of the age of the child. In younger children the epiphysis is still mostly cartilage, and this is translucent to the X-ray, so that the radiograph may be of less value in many cases than it has been to Dr. Huntington. Dr. Huntington said he would be willing to convert a simple into a compound fracture. I think Roberts, of Philadelphia, was the first to advocate that plan, and extended it to all cases of complicated injury around the elbow, and where swelling follows the injury to a great extent. I have only done it once and then secured a better result in a fracture at the elbow-joint than in any other similar case. In this case I found the internal epicondyle and internal liganments torn away and dislocation of the joint. It was an easy matter to incise along the inner border, and to stitch the condyle ligament with a suture, as there was sufficient tissue, and, when healing took place, I had restoration of normal relations. Roberts has used nails for the adjustment of the fragments; but lately Dr. Hunkin had a case where he used black pins in the case of a young child, and the pins did as good work as the nails. In regard to the supracondyloid fractures, which result in the gunstock deformity, and in regard to its effect on the individual I will say that I have seen a number of these cases, in which they become thoroughly accustomed to the position, and use the arm with perfect freedom. I had a child with a gunstock deformity, and, in view of the idea of Allis, of Philadelphia, I suggested an operation to the parents of the child, to chip off the internal epicondyle, and to correct the deformity. I did it, and before my wound had entirely healed I ran across the article that Dr. Huntington has alluded to. I felt very sorry, and my result was a failure. The epicondyle got back into place, and I had a recurrence of the gunstock deformity. I had the opportunity of operating again, and I did a supracondyloid, subcutaneous osteotomy. I went through the line of the original fracture, and restored normal relations. My case is now in normal position, but it is not yet out of the splint. When it is taken out and examined, there is a certain amount of lateral motion in the joint. In children there is always a certain amount of lateral movement when the forearm is not in full extension. That existed in this child's elbow when I did this supracondyloid osteotomy. In another case of fracture of the external condyle the line of fracture ran down through the trochlea. The displacement was reduced, and the arm put in the extended position, matching it with the other arm of the child. The radiograph failed to show a line of fracture whatever. I thought I had reduced it so perfectly that it would not show. There is now considerable movement in the joint, but it has been slow of attainment, and the child can only touch the tip of the nose with the fingers. This is a case where the line of treatment which has been suggested by Dr. Huntington to-night, was followed out, and the radiograph was used; and the picture taken confirmed the accurate readjustment; and yet there was a certain amount of disability. It may take a year for the child to reabsorb the callus. Scudder says that full flexion is better than extension, as the tight triceps on the back acts as a splint, and the bones interlock in front. One thing I feel sure of, and that is that partial ankylosis in a fully-flexed elbow-joint is more easily overcome than in one fully extended, and this should tell in the plan of treatment. I am glad this subject came up, as it has brought out the real cause of the gunstock deformity.

Dr. J. Henry Barbat, San Francisco: In regard to radiographing the bones of children, we find that with an ordinary tube we are unable to distinguish the cartilaginous ends of the bones from the soft tissues. In order to differentiate these structures, we must use a soft tube, and give a very short exposure; from five to six seconds for the extremities will usually suffice.

Dr. W. Winterberg, San Francisco: I should like to say a few words in regard to the treatment of fractures through or in the neighborhood of the elbow-joint. I do not think that it makes much difference whether we apply the splints inflexion or extension, as long as we change them from time to time, and with each change of dressing alter the position, so as to gradually substitute extension for flexion, or vice versa. Leaving the joint in one dressing, without a change of position during the whole length of time which is necessary for healing, will result in considerable stiffness of the joint, which is extremely difficult to overcome in some cases; if, on the contrary, we alter the position at least once a week, as Koenig, of Berlin, teaches, using at the same time massage and passive motion, there will be no possibility of extensive adhesions forming in and around the joint, and, later on, no great difficulty in restoring normal function by mechanical treatment.

Dr. Emmet Rixford, San Francisco: I would like to express the opinion that the preservation of mobility in a fractured joint is greatly dependent upon the nicety with which the fragments are adjusted. The stiffness which we too often see is largely due to imperfect adjustment, and to the formation of masses of new bone in and about the joint, mostly the result of damage done the periosteum. The displacement in may cases, and particularly in oblique fractures, tears up the periosteum extensively in the vicinity of the joint. In a case that came under my care some two years ago, a fracture of the lower end of the humerus, three-fourths of an inch above the articular surface, which had been treated in the extended position for nine weeks, there was a gunstock deformity, held rigidly in about thirty degrees flexion. The X-ray showed that the periosteum was lifted up for three inches on the posterior surface of the humerus, and the triangular interval beneath was filled with new-formed bone. The lower fragment was drawn upwards half an inch or more, presumably by the traction of the muscles of the arm. I cut down, avoiding the musculo-spiral nerve, and removed the new bone, and sutured the fragments together with kangaroo tendon. The wound healed by primary union. The result after five weeks was complete obliteration of the gunstock deformity and active flexion to a right angle. The X-ray is of great value in the anatomical diagnosis of conditions about joints involved in fracture, but it is of more value in old cases, for it will show the presence of new bone and displacements that the fingers can not detect, because of the fixation of the fragments and the effort at repair. It will often enable the surgeon to determine for or against operation, and to indicate the most suitable procedure for the particular case. I can not agree with Dr. Barbat in advocating operation in all cases of fracture involving the elbow-joint. Still, there can be no doubt that certain cases, as, for example, those where there is manifest difficulty in adjusting the fragments, should be subjected to operation.

Dr. A. W. Morton, San Francisco: I did not get to hear all of Dr. Huntington's paper, but, I judge, he advocates opening the joint in some of the cases; but I think we ought to first try to get the fragments in position without it. If there is faulty position of the fragments, we may suture them and apply the splint. If we use the X-ray where we have simply reduced the deformity, we will find the bones in position, but we can not tell what the position will be in twenty-four or forty-eight hours, and then will often realize that the fragments are in a faulty position, and we have an extra amount of callus thrown out. I agree with Dr. Barbat, when we have fragments which can not be retained by splints, to nail them. I believe that Roberts was the first to advocate that plan. I saw Senn nail them with any kind of nails, making the opening with a drill, and slipping the nail through, and keep in position for three weeks. Less callus is thrown out where the position is perfect, and one can use early passive motion. Some claim that early motion increases the amount of callus, but that depends upon the position of the fragments.

Dr. J. Henry Barbat, of San Francisco, read a paper, "The Present Status of Renal and Ureteral Surgery."

Dr. Dudley Tait, San Francisco: I desire, first of all, to congratulate my distinguished friend, Dr. Barbat, on the nature and quality of his experimental work. Such work is, unfortunately, too rare out west, and this is all the more regrettable, as our abdominal work is so subdivided that no single surgeon here is able to control a large number of intestinal or renal cases. The operation of partial exclusion of the intestines, performed by Dr Barbat, in conjunction with ureteral lesions, is open to some serious objections. It is complicated, and requires considerable time and skill. Furthermore, the conditions in which such an operation would be of service generally occur in the course of a long and dificult, if not desperate, intervention. Hence the patient is in no condition to stand a second tedious operation. However, the danger of ascending intestinal infection may be partially eliminated by the adoption of this operative procedure. For those cases, extensive neoplasms, suppurative lesions, in which a considerable area of urethra has been excised, and in which the kidney can not be brought down or the bladder pulled up sufficiently to allow of end to end or lateral anastomosis, I have proposed and executed successfully on a dog the following procedure, by which all possible intestinal infection is avoided: The proximal end of the severed ureter is stitched to the peritoneal surface of the intestine, colon on the left side, ilium on the right, and then infolded in very much the same manner as the rubber tube in Witzel's gastrostomy. The same is done, if necessary, with the distal end, and between the two a canal is made, with the infolded peritoneal surface of the intestine. In reference to the diagnosis of stone in the urethra and kidney, I have found that by giving methylene blue in large doses, a certain amount of it will adhere to the epithelian debris surrounding the foreign body, and thus intensify the X-ray shadow. I am convinced that, by careful research in this direction, we may be able to do with the kidney something similar to what has been done by the use of bismuth in the diagnosis of certain stomach affections. In this country we are far behind in the study of kidney lesions; our cases are not properly worked up, and consequently our results remain unsatisfactory and non-conclusive. None of us have taken up cryoscopy, the phloridzine and methylene tests. We are satisfied with a summary chemical analysis, and never think of determining the function of each or both kidneys. The experience of European surgeons would seem to indicate that we should turn from pathological anatomy to physiological pathology.

Dr. Emmet Rixford, San Francisco: I would ask for no better case in which to demonstrate the utiity of the X-ray in the diagnosis of renal calculi than that described by Dr. Barbat, and from which he removed this kidney post mortem. This enlarged and extensively-diseased kidney contains a stone more than two inches long, and almost an inch thick. Certainly, had the X-ray been used, it would have shown the presence of this stone, and the doctor would not have desisted in his exploratory operation until he had found it. Many surgeons have opened the kidney and failed to discover stones which lay in the calices. Bevan, of Chicago, claims that a good X-ray picture is of more value in the diagnosis of renal calculi than an exploratory operation. Though it is not strictly in order, I wish to say a word in regard to the paper of Dr. Wills. It seems to be very little to the credit of the society that the paper of Dr. Wills, the report of the chairman of the Committee on Surgery, which was evidently the result of a great deal of labor, and is on an important subject, should have been received absolutely without discussion. I have had little experience in the field of surgery of the lung, though I have operated often enough for empyema and thoracic fistula. I would say that it is preferable to remove the posterior portions of ribs, rather than the anterior, in the endeavor to obliterate a cavity within the chest, since, for the removal of a given amount of bone, a greater collapse of the chest wall is obtained by taking it from near the angles of the ribs. I did not hear Dr. Wills mention the name of Macewen, of Glasgow, who has done a good deal of work in this field. It was my pleasure to see a case in which Macewen had removed practically the whole left lung for destructive tuberculosis. The patient had been sent from the medical ward by Prof. Gairdner, who had considered the man incurable, having severe empyema of the left side, with abscess of the lung, and considerable involvement of the right lung with tuberculosis. Macewen removed most of the ribs on the left side, and took out much of the lung. The rest sloughed out. Two years afterwards, when I saw the man, he had a very flat chest on the left side, with the heart covered by little more than the skin; but he had no sign of tuberculosis, and was earning his living as a machinist. I quote this case as an example of what may be done in suitable cases in the surgery of the lung.

Dr. G. A. Hare, Fresno: I have been very much interested in this paper, and also in the remarks of Dr. Tait. I would like to inquire the amount of methylene blue used in order to give satisfactory results.

Dr. Tait: The experiments alluded to are only in an early stage, and no conclusions can be deduced therefrom as to the proper amount to be used.

Dr. A. W. Morton, of San Francisco, read a paper, "The Subarachnoid Injection of Cocain for Operations on All Parts of the Body."

Dr. Wm. C. Riley, of San Francisco, read a paper, "The Sterilization and Selection of Muriat of Cocain for Spinal Anesthesia."

Dr. Dudley Tait, San Francisco: I believe I had the honor of making the first subarachnoid injection of cocain in this country after Corning. During the past eighteen months we have used this method 102 times, in all varieties of complaints,—injuries, amputations of the lower limbs, vesical, vaginal, perineal, rectal, Bottini operations, laparotomies, resection of the appendix, hernia intra and perihepatic abscesses, empyema, etc. We did not, however, use the subarachnoid route in cases where local anesthesia was indicated; circumcision, skin grafting, phlegmons, etc. Nothing certain is known regarding the extent of the area of analgesia induced by cocain. In our first researches we believed to have found a certain relation between the degree of pressure used in making the injection and the area of analgesia. Six months ago Bier made a somewhat similar statement, and noted analgesia in some cases as high as the forehead. The results of our injection differ from those obtained by many surgeons. The post-operative effects were seldom pronounced; hyperthermia was found in less than fifteen per cent of cases; severe headache was exceedingly rare, and mild headache occurred in not more than ten per cent of cases. The latter fact may be partly due to our custom giving strychnin and nitroglycerin in all cases at the time of lumbar puncture. Vomiting occurred in about forty per cent of the cases. Severe shock was noted in five cases. The subarachnoid injection of cocain may be of service in medical cases, and also in the diagnosis of certain paralytic conditions, involving the disrupt (ileus) or lower limb. Most physiologists agree that the disagreeable effects noted by surgeons after subarachnoid injections of cocain are entirely due to toxicity of the drug. Salt water injections produced none of these phenomena. Dr. Morton is mistaken in attributing shock to the loss of cerebro-spinal fluid, for surgical literature abounds in cases of fracture of the ethmoid or base of the skull, followed by prolonged loss of great quantities of cerebrospinal fluid, without apparent damage. In one case, prior to injecting cocain, I withdrew twelve grams of fluid, without any ill effects. In looking for a substance less toxic than cocain, I have tried quinin, antipyrin, eucain, and tropococain, with seventy-five centigrams of antipyrin we were able to amputate successfully a leg, but the indication for operation in this case was senile gangrene. It goes without saying that, under such conditions, the proper study of analgesia is well-nigh impossible. Subarachnoid injections of antipyrin in dogs give superficial but no deep analgesia. Eucain is unreliable and extremely variable. Tropococain was tried in three cases (two to three per cent solution); no shock nor disagreeable after-effects were noted in any of these cases. We intend to continue the work in this direction. The subarachnoid route is almost always contraindicated in operations on the abdomen. The sudden vomiting (forty per cent of cases), with rigidity of the recti, is totally different from that accompanying ether, and generally arrests all work. After trying a score of methods of sterilization of cocain, we are today convinced that at least three methods are scientifically reliable, and above all possible reproach. First, the Tyndall method is slow and requires an experienced assistant. The solution prepared by this method can be kept for several weeks, and does not vary perceptibly. Second, the solution can be filtered with the Roux porcelain tube. This is an accurate and simple mode of sterilization. Third, solution of cocain (or tropococain) in sealed glass tubes is placed in a bath of oil or glycerin, and maintained one hour at a temperature of 120 to 130 C. Thus prepared, the cocain loses none of its chemical or physiological properties; its rotary power will not show any variation, and the absence of the two possible products of decomposition of cocain (ecgonin and benzoil ecgonin) can be easily determined by simple chemical tests. We have of late adopted this mode of preparing our cocain, and are well pleased with it. The subarachnoid space should not be trifled with, and prior to suggesting a new method of preparing cocain to be used by this route, all rigorous scientific tests should be made.

Dr. M. Krotoszyner, San Francisco: I have used spinal anesthesia in quite a number of cases, and agree with Dr. Morton that this method of anesthetizing is not difficult in its technic. However, I think that spinal puncture is too serious a procedure in order to apply it for minor operations, as, for instance, varicocele or circumcision. I have used this method in a number of Bottini operations, performed on old men, and have noticed such very violent and distressing symptoms, nausea, vomiting, profuse perspiration, cyanosis, severe collapse, that I would not wish to repeat this method of anesthetizing in such cases unless I am compelled to.

Dr. F. B. Carpenter, San Francisco: My experience does not accord with that of the last speaker with regard to Bottini operation. I have had satisfactory results with spinal anesthesia, and, so far as collapse occurs, I have had the patient sit erect on the table immediately after the operation, and then fall back in a faint, was revived, and there were no bad after effects.

Dr. E. G. Frisbie, San Francisco: I saw a few of Dr. Morton's injections, and some also in the practise of other colleagues, and I have not seen any bad effects. In one, a woman 68 years of age, who had been suffering for years with diabetes mellitus, operated for appendicitis by Dr. Kelly, there were no unpleasant symptoms, no accelerated pulse, respiration was not increased, and there was no discomfort, and when the patient left the table, she asked when dinner would be ready, and that has been the way with all the cases, except one, in a man, who was given a considerable amount of cocain, there was vomiting, which lasted a few minutes, and then the operation was continued. I wish to speak of one point since this method came out, that a colleague told me that chloral hydrate obviates the headache following the injection. I learned this through a physician who became a victim of the cocain habit, and for months he used large quantities of chloral for the headache following cocain insufflation, and was relieved.

Dr. D. A. Hodghead, San Francisco: I have used this method in some four or five cases of labor. This number is not sufficient to justify us in drawing any positive conclusions. However, in the cases which I have used it, it has been very satisfactory. The anesthetic was given at the beginning or during the progress of the second stage. In two or three minutes anesthesia was complete. The patient regained courage, the uterine contractions were just as strong as before, and there was no suffering. The bearing-down pains were improved, because the patient did not suffer; the relaxation of the cervix and of the perineum was increased, and the delivery thereby rendered more rapid than, I think, it would otherwise have been. In two cases I applied the forceps; in one of these there was a fibroid tumor of large size in the pelvis. The presenting part had to be drawn past this growth, but this was accomplished without any great difficulty. In another case the child weighed eleven and one-half pounds, and, although the woman was a primipara, there was no laceration of the perineum, even with the use of the forceps. I attribute this to the influence of cocain. So far as my experience goes, the method has been a success.

Dr. S. H. Buteau, Oakland: There is one class of cases I wish to speak of, namely, where there is a considerable degree of shock following an accident. The application of cocain was suggested to me by some experiments carried out by Cushing, of Johns Hopkins. In a number of cases where it was injected by him locally into the trunks of the nerves that supplied the injured parts, it lessened the shock. I recollect two cases in private practise, one in which the individual was run over by a truck. The left limb was crushed above the knee; the patient was carried fifteen blocks in an ambulance. It was one-half hour after this before the attending surgeon could operate, and during this time there was no shock, as the cocain was given by spinal injection at the place of the accident, and shortly after its occurrence. Another case, the patient was going into shock during the interval of preparation for operation. The cocain was then given by spinal injection; the shock did not deepen, and the amputation was performed without further injection. These two cases have demonstrated, I think, the fact that shock can be lessened or done away with if spinal injections of cocain are made early after the accident.

Dr. Morton: I have been very much pleased to hear these discussions, and I have been very much interested in them. I have used this method, because I think it is safe, and there can be no question but what it is superior to general anesthesia in diabetic patients. Regarding the diabetic patient that Dr. Frisbie mentioned, I remember the old lady very well. She was 68 years of age, and suffering from diabetes, 5 per cent, and in a collapsed condition, pulse 100, respiration 30. The doctor worked one hour, and in a few minutes after the operation was completed the pulse was 80 and respiration 20. She drank tea during the operation, and wanted to know when dinner would be ready. In another case, 86 years of age, there was the same condition of diabetes. The doctor was afraid to give an anesthetic, as there was a heart lesion, aortic stenosis, and also a condition of hypertrophy and dilatation, and a general atheroma. In that case we gave 15 minims of a 2 per cent solution, or three-tenths of a grain. The analgesia was complete in 4 minutes; Dr. Fehleisen performed the operation, and removed the limb. When he was sawing the bone, I asked the patient if he knew what we were doing. He said he did not feel any pain, but he could hear the sawing, showing the tactile sensation was present. We often talk to the patient, and it requires a man to notice them, especially if it be a nervous person. Now, as to the after-effects that the doctor spoke of, they are possibly due to shock. There is sometimes nausea, vomiting and rapid pulse; respiration is seldom changed. I do not think it is due to cocain poisoning, and I am not ready to say that it is due to loss of cerebro-spinal fluid. I recollect one case, in which salt solution was injected, and a marked case of headache was produced. That makes me think it is shock or some reflex condition. Now, the vomiting often occurs in about 15 minutes after the injection, and is more likely to occur in abdominal operations, but it only lasts for a few minutes. In one case of gastro-enterostomy, where the patient had nearly bled to death from a gastric ulcer, we gave the injection next day. The pulse was 101, and when the patient left the table it was 90. The patient had watched the operation, and had no nausea. It seems to act better in the old persons than in the young and strong. In the old cases headache seldom occurs. In regard to the mastoid operation, only two weeks ago I saw a case in which it extended to the upper part of the body. There was a trephining done, but it might have been done without anything, as he was in a semicomatose condition; but in one case I removed one-third of the lower jaw, and there was no pain. I think it would be safe in mastoid operations.

A paper by Dr. Z. T. Malaby, "Caesarean Section (Porro's Operation)," was read by title.

A paper by Dr. C. G. Levison, of San Francisco, "The Surgical Treatment of Tuberculous Cervical Adenitis," in the absence of the author, was read by title.

A paper by Dr. F. B. Carpenter, "Treatment of Fracture of the Patella," was read by title.

Dr. W. H. Winterberg, of San Francisco, read a paper, "A new Operation for Defective Union after Fracture of the Humerus, with Exhibition of the Patient."

Dr. J. Henry Barbat, San Francisco: This case presents the same features that we find in all cases of fracture into a joint. The only proper thing to do in all these cases is to cut down and wire the bones, and it does not make any difference which joint it is, the treatment is the same. Instead of using wire in all cases, I prefer to use either nails or silver plate, as the parts are kept in more accurate apposition by these appliances. If the fracture is an oblique one, nails give the best result; but if it is transverse, the silver plate is preferable. I use two screws in each fragment, and the fixation is absolute.

Dr. A. W. Morton, San Francisco: This is a very interesting case, and the doctor deserves considerable credit for it. In this form of dislocation we sometimes find great difficulty in reducing it. The original idea was to treat the fracture and reduce the dislocation later. I believe McBurney first suggested making an open incision, boring holes in the upper fragment, and reducing by hooks, then wiring the fracture. I have treated one case by open incision, and pulled the dislocated head into position by forceps, and then treated the fracture. If the fracture is oblique, it may be nailed, otherwise wired, and then apply splints.

Dr. Barbat: Instead of wire, I use the silver plate. It is Halstead's idea, and is better than wiring, as the parts are absolutely fixed. When you pull on the wire, there is motion, and it is impossible to make it tight. When we screw on the plate, the fixation is absolute.

Dr. H. M. Sherman, San Francisco: I would like to ask Dr. Barbat how long the screws are left in.

Dr. Barbat: In the last case I took the screws out four weeks after, and I had to use the screw-driver to take them out.

Dr. Sherman: Were the heads of the screws flush with the plate?

Dr. Barbat: The head of the screw is raised in the center.

Dr. S. J. Hunkin, San Francisco: Usually when I pull the nail out, it comes out quite readily; I should think this would apply also to the screw.

Dr. Barbat: I wish to make myself clear on this subject. The way the screws and nails hold depends on the size of the hole which is made. The hole should be of such size that it requires considerable force to place the screw, and in the case of the nails it should require as much force as to drive the nail into a piece of redwood. In some cases I have had to use a pair of forceps and a hammer to get the nails out.

Dr. F. B. Carpenter, San Francisco: I do not think I made the hole the right size, as the screw fell out.

Dr. Winterberg: I am rather surprised to hear the discussion revolving around a point of entirely subordinate importance, instead of hearing something said about the merits of the priniciples of operation, when applied for the purpose of restoring normal conditions and functions of the joint in similar cases. What, with the mode of holding the fragments in opposition, it is perfectly immaterial how that end is being accomplished, and more or less a matter of choice or predilection with the individual operator. The reason why I preferred ligatures in this case was simply one of expediency. After the excision of the wedge-shaped portion of bone substance, it still was possible only by applying considerable force to correct and maintain the position. I came to the conclusion to facilitate matters by using traction on the silk threads, which were to be passed through the fragments, as an aid to approximating them; and as there happened to be a certain amount of rotation around the longitudinal axis of the upper fragments, the holes for the ligatures were not drilled in the same vertical planes above and below, but a certain degree of lateral deviation of one set of holes was executed, corresponding approximately to the degree of rotation, and thus, by drawing the silk threads tight and manipulating the fragments properly, it was possible to effect a satisfactory restoration of the normal shape of the bone. The use of metal plates, nails, or ivory pegs is certainly commendable under proper indications.

Dr. Emmet Rixford, of San Francisco, read a paper, "Carcinoma of the Lower End of the Common Bile Duct Successfully Removed, with Re-implantation of the Duct into the Duodenum; Recurrence after One Year."

Dr. D. D. Crowley: Dr. Crowley congratulates Dr. Rixford on the diagnosis of this case. I diagnosed it before it went to him. We are of some use in Oakland, even if it is to diagnose cases for San Francisco surgeons. I would say, in this region I am in the habit of packing large amounts of gauze before opening, otherwise the bile gets into the peritoneum very much after having emptied the gall bladder, and I have to swab it out and remove the gauze and stitch the gall bladder In this case I wish to congratulate Dr. Rixford on his operative skill, and I was very much interested in the work.

Dr. J. Henry Barbat, San Francisco: The doctor is to be congratulated on the success of this operation, as those of us who have worked in this region can appreciate the difficulties which beset the operator. It is not advisable to attempt to separate the duodenum from the pancreas, as we run the risk of having necrosis of the bowel, so the best way is to cut through the gut in front and again through the posterior wall if necessary. One point which this case illustrates is the advisability of not taking out the gall bladder until you have to. If the doctor had removed the gall bladder at the first operation, he would have been left without recourse at the second operation.

Dr. A. W. Morton, San Francisco: I was very much interested in this report. There is one point I wish to congratulate the doctor on, and that is his method of establishing drainage. In one case, in which I removed a stone from the common duct, and was unable to close the opening, I stitched a small rubber tube at the opening with catgut, and surrounded the tube with gauze; in two days' time the gauze was removed, and distinct sinus extended to the duct, which closed later by granulations.

GENITO-URINARY AND SKIN DISEASES.

Dr. R. L. Rigdon, of San Francisco, read a paper, "Combined Hydrocele and Hematocele of Tunica Vaginalis Testis."

Dr. Dudley Tait, San Francisco: I am amazed that at this period of clean, expeditious surgery one should practise such a method of treatment for the condition or symptom known as hydrocele. It is a grave error to revert to such blind measures. It is not only a grave error in common sense, but also in pathology, to resort to the injection of irritating substances, thereby substituting an unlimitable irritation for an unknown pathological lesion. Every surgeon who has made injections of iodin or carbolic acid will admit that it is impossible to circumscribe the action of these drugs, consequently the effects are frequently disastrous, besides exposing to recurrence. The injection method of treatment is both unscientific and illogical, especially in view of the fact that other simple, harmless, and truly radical methods are available. I refer to eversion and also total excision of the tunica vaginalis, the only two positively radical operations. Total excision, commonly called Von Bergmann's operation, was used by Celsius, Albucassis, Boyer, Dupuytren, and others. Eversion of the tunica vaginalis consists simply in turning it inside out, and then suturing it to the loose cellular tissue surrounding the cord; this operation can be done under local anesthesia, and completed within five or ten minutes at the utmost. It is bloodless; no local reaction follows, and the patient may get out of bed within twenty-four hours. The after treatment is nil, and there is no possibility of any recurrence of the hyrdocele.

Dr. Thomas W. Huntington, San Francisco: I would like to ask the doctor if the testicle is not impaired by this process.

Dr. Tait: As early as the third week the testicle will be found freely movable in the scrotum, and palpation reveals no pain at any time after the first week. No testicular lesons have ever been noted as a result of this simple operative procedure.

Dr. Tait: The testicle is inside of the sac, which is turned inside out, and in a few days it becomes perfectly movable.

Dr. Huntington: That would appear all right if it did not become adherent and give annoyance. My plan is to open the scrotum and sac, and dissect out parts of the sac, and stitch the sac to the testicle. It does very well, and the normal relations are the same, and we do not have recurrence. This is a more rational plan, I think, than the other.

"Report of a Case of Gumatous Ulcer of the Bladder, Complicated with Retention. Treated by Suprapubic Cystotomy and Excision with Curettement. Prolonged Drainage. Recovery." By Granville MacGowan, Los Angeles.

Dr. D. W. Montgomery read a paper, "Chromic Acid as a Caustic in the Treatment of Epithelioma of the Skin."

Dr. J. Henry Barbat, San Francisco: This is not my domain, but I wish to say a word about the use of formalin in these cases. I have removed several small epitheliomas by means of formalin injected under the base of the growth. Applications to the surface of the growth did not give satisfactory results. I first inject a solution of cocain into the base of the epithelioma, and follow it with an injection of pure formalin, being careful to see that you infiltrate the tissues thoroughly. After a few days the growth begins to shrivel up and get dry, and subsequently drops off, leaving scarcely any scar.

Dr. M. Krotoszyner, of San Francisco, read a paper, "The Treatment of Prostatic Hypertrophy."

PEDIATRICS.

The paper of Dr. J. F. McCone, "A Case of Teratoma in the New-born."

Dr. Wm. Fitch Cheney, of San Francisco, read a paper, "Manifestations of Rheumatism in Children."

A paper by Dr. Elizabeth Follansbee, "Rheumatism in Children."

Dr. E. G. Frisbie, of San Francisco, read a paper, "Medical Treatment of Diseases of Lymph Glands in Children."

Dr. S. J. Hunkin, of San Francisco, read a paper, "Surgical Treatment of Tuberculous Glands of the Neck." [To be published.]

Dr. H. M. Sherman, San Francisco: Mr. President: The question of the advisability of operation in these cases does not need to be discussed by me, but the writer of the paper and I do not agree wholly on the technical points. So far as incision and removal are concerned, given a case where there has been secondary infection in the gland, and suppuration, and the development of a sinus, and the matting of a great deal of tissue to the gland, and Dr. Hunkin's procedure would be practicable; but given a case that comes for early operation, a less formidable attack on the gland would be successful. I prefer the small skin incision, and then, with the finger and the dissector, one can go down to the gland and separate it from the surrounding tissue, and this can be done with the ungloved or the gloved finger. The removal of the first gives easy access to the second, and so on; and finally there may be a large hole inside, and only a small opening in the skin. The shorter length of the incision is a conservative and cosmetic procedure.

OBSTETRICS AND PUERPERAL DISEASES.

The paper by Dr. R. A. Reynolds, "Some Unexpected Things Met with in Obstetrics," was read by title.

The paper by Dr. Adelaide Brown, "Melena Neonatorum," was read by title.

Dr. John Fife, Red Bluff, read a paper entitled "Puerperal Sepsis." [To be published.]

Dr. George L. Cole, Los Angeles: This paper is a very useful one, and I suppose the reason it is not discussed is because so few want to say that they have had any fever with obstetrical cases. I think that no one will take exception to the fact that curettage is the proper mode of procedure. After the diagnosis is made, we should curette at once, and carefully wash it out, and if there is anything further to be done, to rely on irrigation and not curettage. In regard to the antistreptococcus serum, when the streptococcus is found to be the cause of the disease, it is the proper procedure. Many of the mild cases are due to the staphylococcus, but when the streptococcus is the cause, known by the examination, I use the serum, and use it faithfully, and it has been found to do good in the cases I have used it. Many of the cases have been reported as not successful, as in the case of serum used for pneumonia. I find that the use of one or two injections does not do much good, but it should be followed up and used repeatedly, and it has been found to do good. I found it so myself when the trouble is due to the streptococcus. In a case of pneumonia I had one year ago, I used the anti-pneumococcus serum, and did not use simply one injection, but followed it over a period of several days, morning and evening, and used large quantities, and I think it is the same with the antistreptococcus serum, that if we use it repeatedly and in large quantities, it is productive of good, and if we use small quantities, we will be disappointed in the result.

Dr. A. R. Rooney, Auburn: This question is one which appeals particularly to the general physician, and is a question of great moment to men who have to depend on all kinds of work to maintain their position in the locality in which they are practising. Now, as far as I am concerned, I do surgery, midwifery, and all kinds of work, making a specialty of none. I know in my practise of two cases in which I had puerperal sepsis, due to the attending nurse. I am pleased to say that I have not had many cases. I have always been clean, and have imposed cleanliness on the nurse and patient, and every one surrounding her; but I know in two cases interference of the nurse was the cause of the poisoning. In one she had the insolence to say to me, "Doctor, I assure you the presentation s' all right, as I examined her myself." That patient had sepsis. That nurse's personal appearance showed me she took no care of herself, her nails were in mourning, and she was a very poor subject to look upon, and, after giving her a severe dressing down, the family still preferred to retain her in their service. I never had a chance to use the serum, but have always intended to do so when the occasion presented; but since its introduction I have not had a case. Another question is that many of the country physicians are too poor to keep rubber gloves, when they have their families and other things to look out for, and we can not expect it, but we can expect cleanliness and strict asepsis. All can practise that. A number of practitioners never attend a medical society, nor come within the hearing of our voices, and that is one of the reasons why we should endeavor to establish local societies and have these men mingle with the better element of the profession. If we can not use the tissue rubber gloves, we at least can use the rubber cots, which prevent the patient from infection and from the lodgment of germs, through the finger nails, which are the chief seat of infection.

Dr. John Fife, Red Bluff: In estimating the value of the antistreptococcus serum, the cause should be considered, as I have said in the paper; and this can only be determined by means of the microscope. In about 75 per cent of the cases the cause is the saprophytes, and recovery follows with or without treatment. In the remaining 25 per cent the cause is streptococcus or the staphylococcus. These cases are always grave, and, in the experience of Pryor and others, the mortality rate has not been favorably influenced by the serum.

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Dr. G. W. Seaton, Clayton, Ind., "Relieved a case of impotency of fourteen years' standing."

Dr. P. D. Peltier, Hartford, Conn., "Succeeded far beyond my expectations."

Dr. M. R. Latimer, Aquasca, Md., "Used on an old gentleman over seventy years of age for functional impotency, with decided benefit."

Dr. C. H. Latimer, Government Hospital for Insane, "My patient has been benefited by Pil Orientalis."